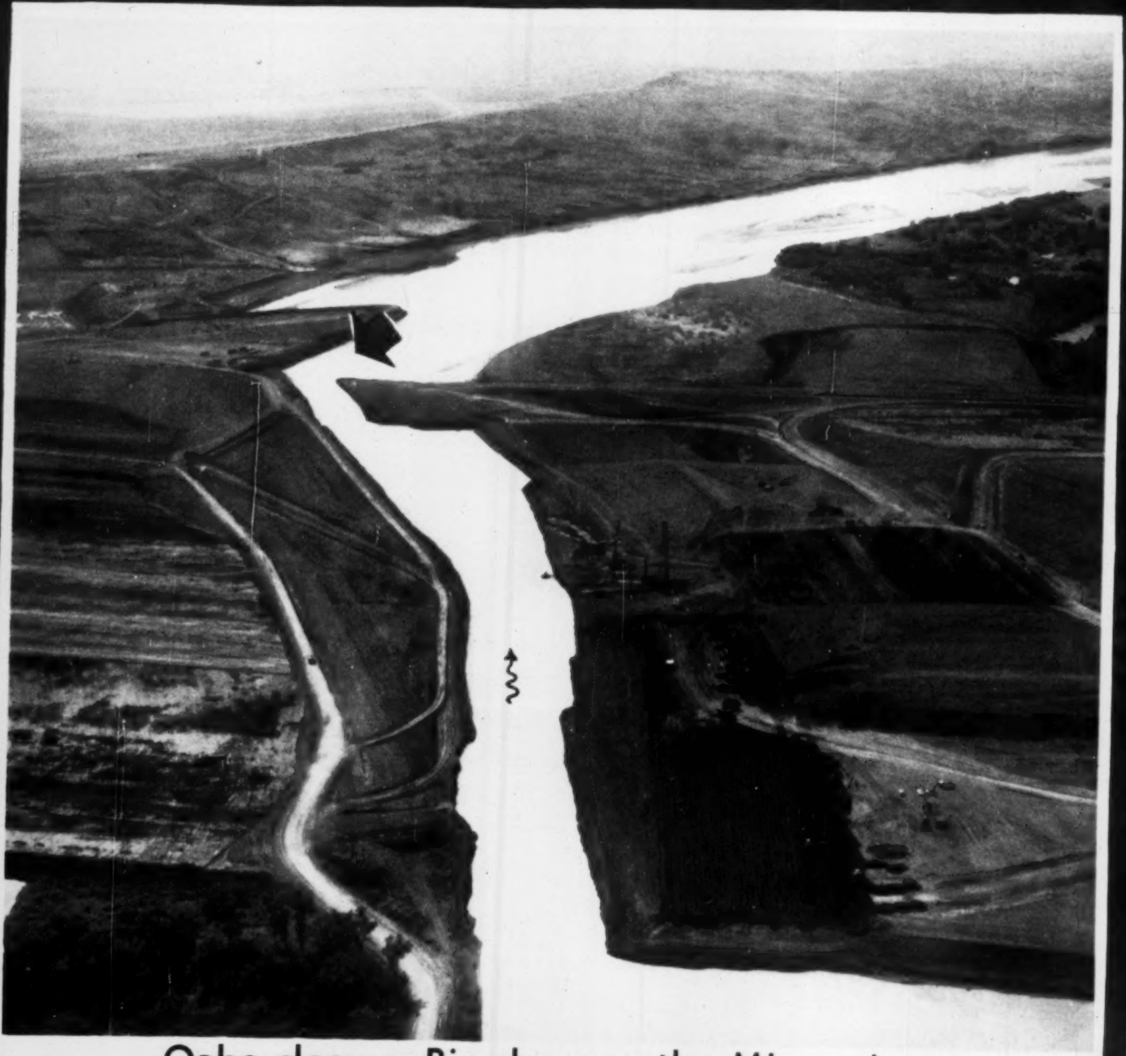
ENGINEERING NEWS-RECORD

- ▶ How to beat thin-wall building troubles
- ▶ $5 million gamble for a better fish trap



Oahe closure: Big show on the Missouri *p21*

E B POWER GS
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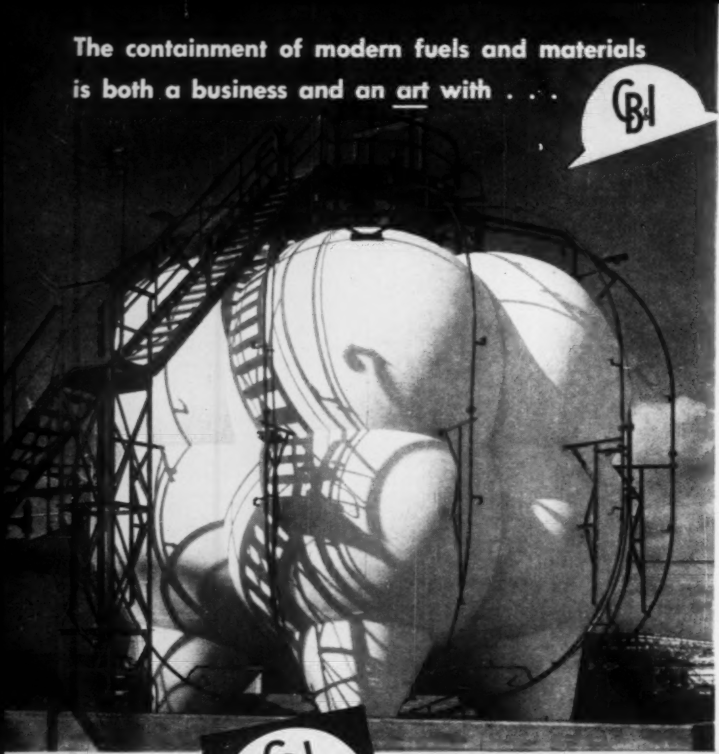

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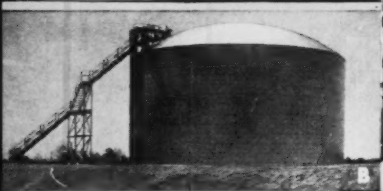
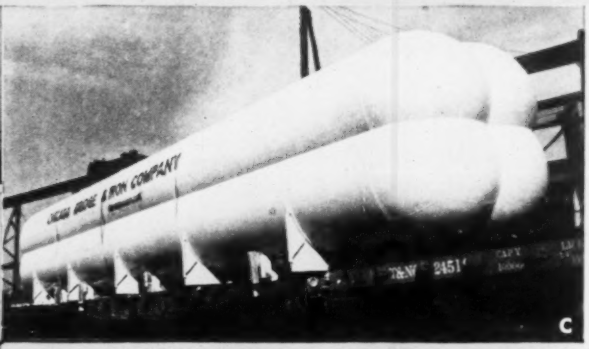
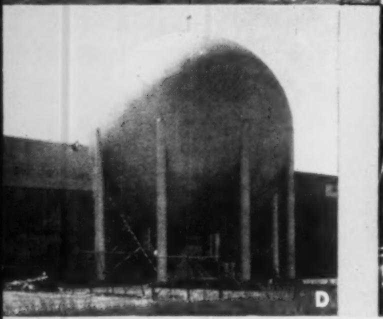
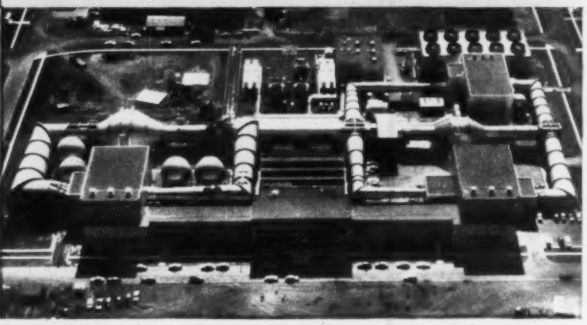
A few typical installations are shown and described below. Of particular interest, is HORTONCLAD®—a new vacuum bonding process which makes it possible for CB&I to produce composite plates in a larger range of combinations than has previously been available. Write our nearest CB&I office for the new bulletin on *Hortonclad* and literature on *CB&I Special plate structures.*

See CB&I for Creative CRAFTSMANSHIP IN STEEL









TOP, LEFT—14-lobe MULTISPHERE designed, fabricated and erected by CB&I to store 100,000 gallons of liquid methyl chloride at 150 lbs. working pressure. Design offers optimum versatility for pressure vessels.

A—5052 ALUMINUM was used for these ammonium nitrate storage tanks.

B—LIQUID PROPANE is stored by refrigeration at 1½ lbs. working pressure at minus 44° F in this unique 70-ft. diameter tank, designed and built by CB&I.

C—MULTICYLINDER Multi-lobe pressure vessels such as this offer advantage of high pressure storage where space is limited. Vessel is designed for 250 lbs. working pressure.

D—VACUUM SERVICE is provided by Hortonsphere® at a University of Toronto wind tunnel installation.

E—TUNNEL SECTIONS for wind tunnel were fabricated and erected by CB&I. A supersonic wind tunnel for Convair Division of General Dynamics was recently completed by CB&I as a "turnkey" project.

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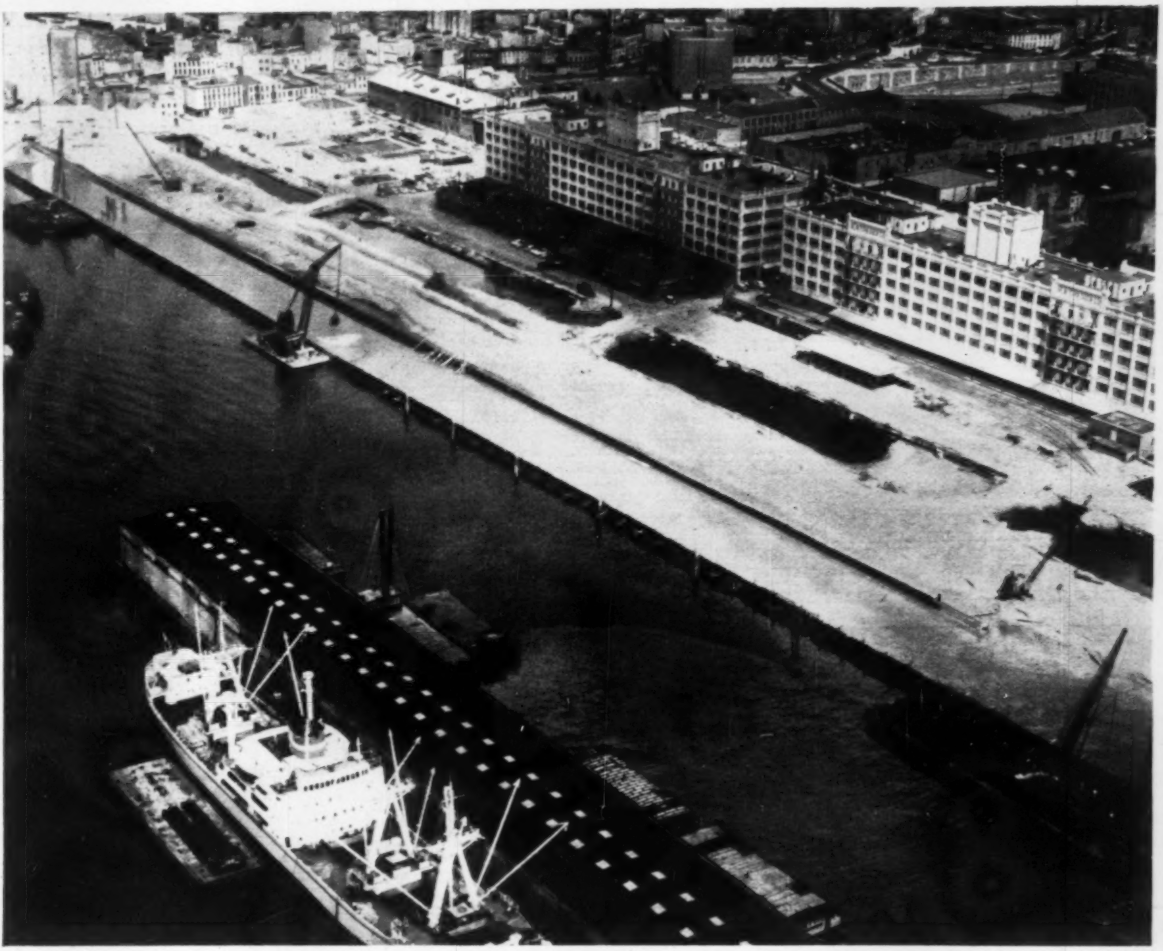

LONGEST WHARF IN NEW YORK HARBOR

built with Sheet-Piling Bulkhead and Anchor Wall

New York City's largest single waterfront facility is new Pier 11 in Atlantic Basin, Brooklyn-Port Authority Piers, completed in April. It provides 2100 ft of marginal berthing space, five acres of truckloading space, plus cargo building and loading platforms.

Pier 11 was constructed by the solid fill method, using a rock dike and steel sheet piling at the waterside. A second-sheet pile wall was driven to serve as a "deadman" anchor, and special-length tie rods firmly connected anchor and sea walls.

Bethlehem supplied 3900 tons of steel sheet piling for Pier 11, and also supplied the special-length tie rods.

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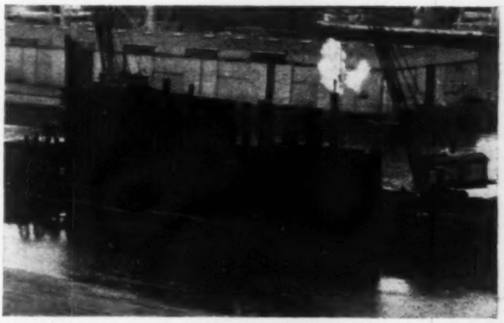

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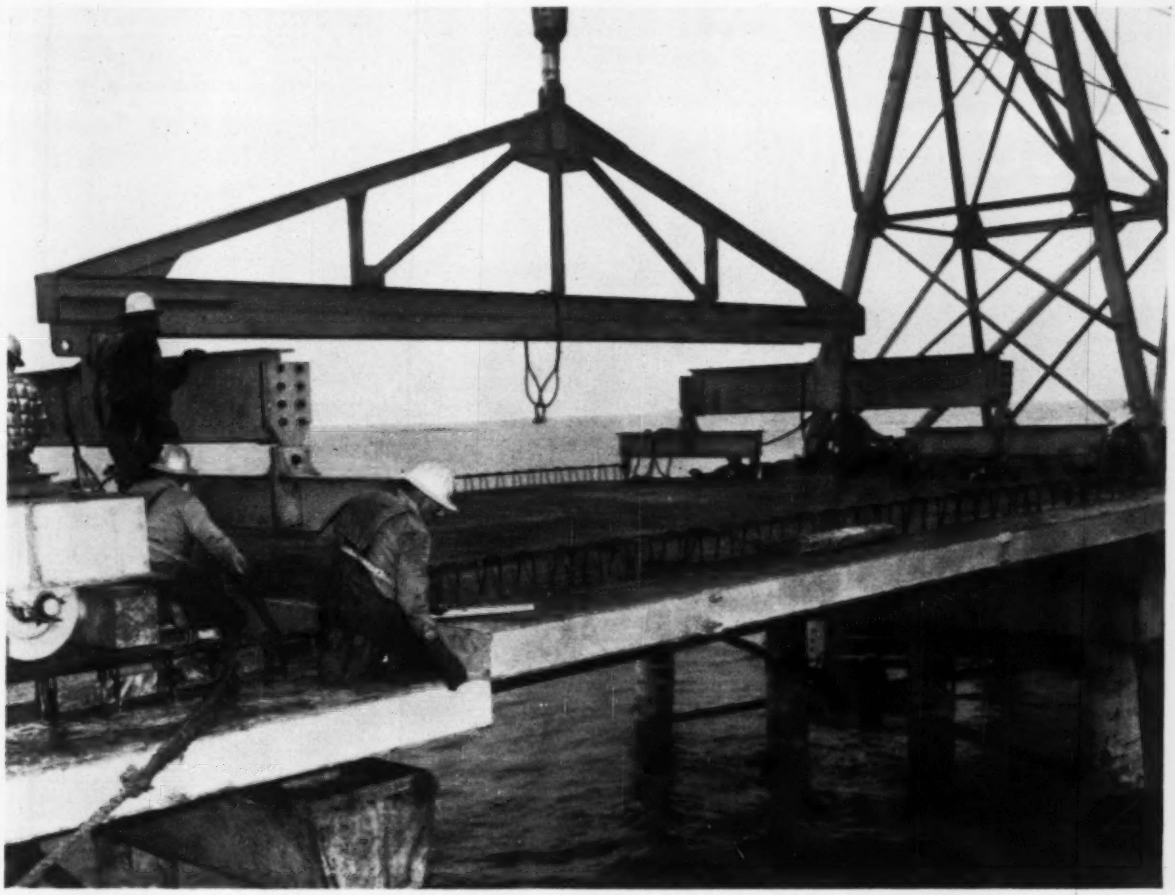
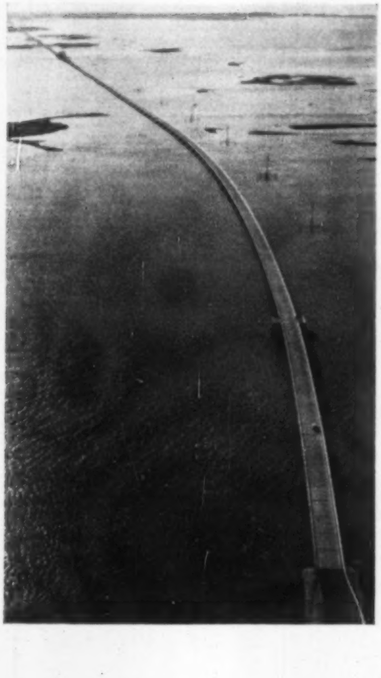


Fly Ash Concrete Meets Special Requirements of 2½-mile Overseas Highway Bridge



In 1955 the State of Alabama Highway Department built the Dauphin Island Bridge from Cedar Point, south of Mobile, across Mississippi Sound. The principal structure consists of 342 precast deck sections, each 29 feet wide and 34 feet long, resting on cast-in-place concrete caps supported by steel piles fully encased in concrete.

Required: High Early Strength, Resistance to Destructive Water

High early strength was needed since the deck sections were cast in Mobile, on barges, then towed 30 miles down the bay and lifted into place in the bridge five days after casting. A minimum strength of 3,000 psi at five days was required for 6 x 12 test cylinders cast and cured on the job. This requirement was fully met using 5.75 sacks of Type II cement and 135 pounds of Fly Ash per cubic yard and an appropriate quantity of a commercial dispersing agent. Later strengths, of course, have increased progressively over many months, due to Pozzolanic action of the Fly Ash combining with lime from the hydrated cement to form additional cementitious materials.

Two other important requirements of this job were met by using Fly Ash in the concrete: (1) greater impermeability and (2) increased resistance to the chemical attack of sulfates in the water.

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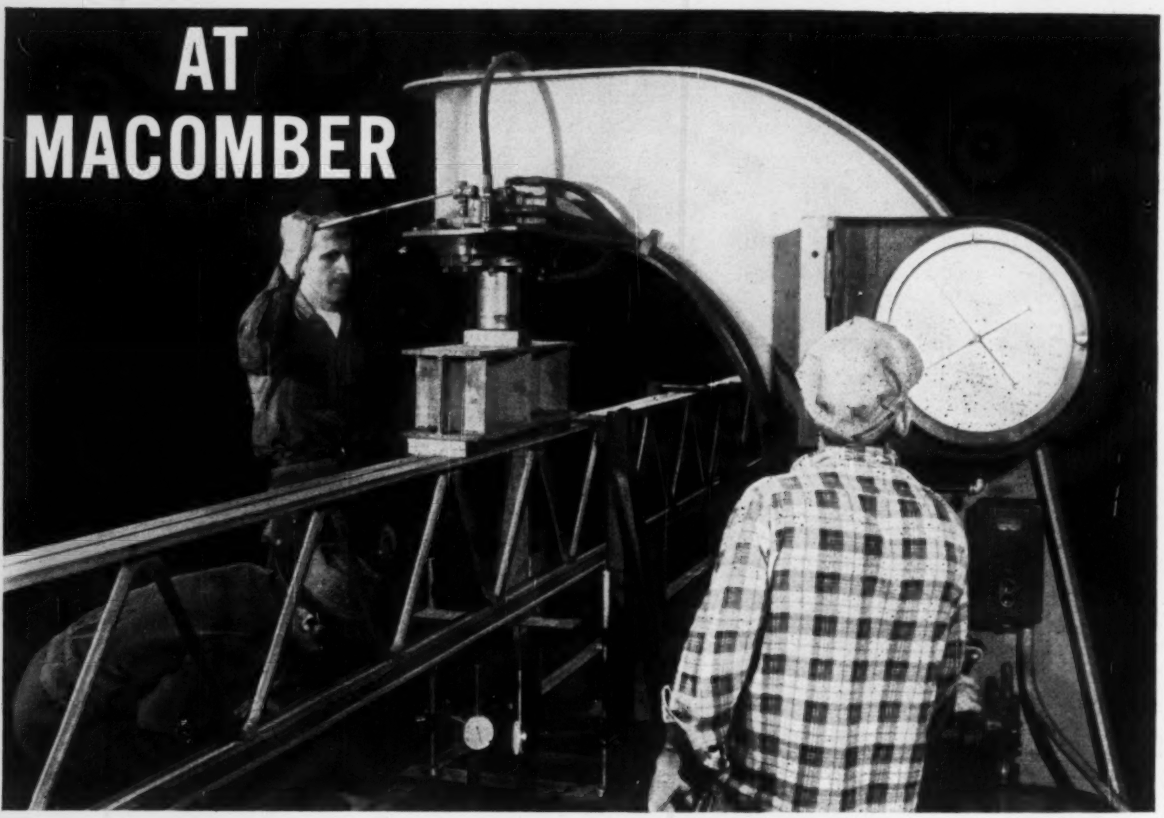
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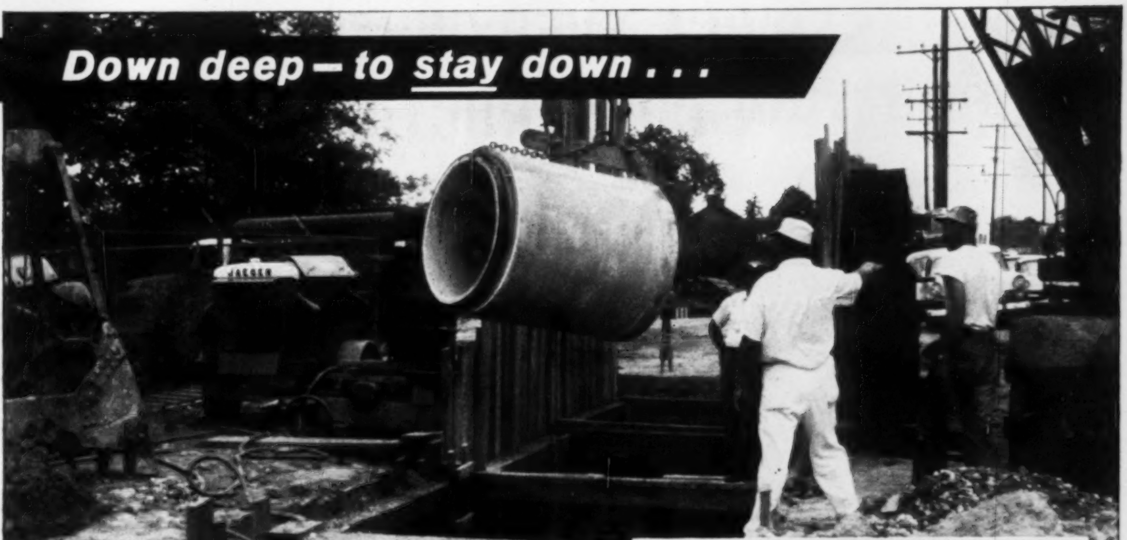

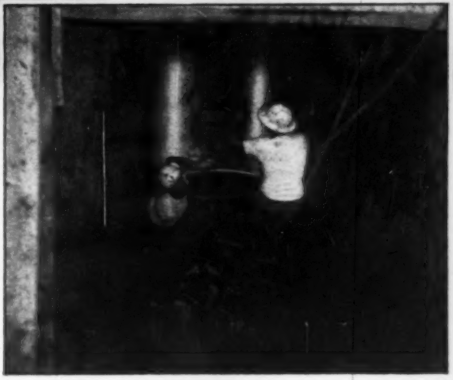

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This view of an Akron, Ohio sewer job in progress clearly shows how United States Concrete Pipe and Tylox Flexible Couplings "join up" to reduce installation costs by speeding pipe work.

The trench is 31 feet deep, parallel with and below the level of the adjacent Little Cuyahoga River. Helping to offset slow excavation work, is the ease and speed of jointing the flexible-coupled pipe. Resisting infiltration are the *compression*-sealed joints formed by the multiple-ring Tylox Flexible Gaskets. Assuring *long-range* economy of the line is the long, trouble-free service life of both pipe and joint.

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PROJECT—Little Cuyahoga River Interceptor Sewer, by Akron Bureau of Sewerage.

ENGINEERS—For City of Akron: R. J. Bushee, and C. A. Somogy.

INSTALLATION—City Maintenance Forces, Ed Gates, Superintendent.

PIPE—33" C-76 United States Concrete Pipe with Tylox Rubber Gaskets.

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Reader Comment

What Price Safety?

Sir—Congratulations on the excellent article "How Much Safer Is Limited Access?," (ENR July 17, p. 21), and on the coverage given to the fine safety records of the U. S. toll roads.

Unfortunately, the table "How the Accident Rates Compare" at the top of page 22 has interchanged the years 1957 and 1955, making it appear that the fatality rates for Toll Roads and All Roads & Streets have been increasing since 1955. Actually the reverse is true, and this is properly stated in the text on the bottom of page 21.

The story comments that "the toll roads can afford to, and do, keep an ever-increasing, intelligent, forceful and extensive law enforcement and guidance policy in effect 24 hours a day." This provokes the question as to whether the national economy *can afford not to pursue* the same policy on all roads, when fatalities are rated by the National Safety Council at a cost of $135,000 each during 1957?

J. Allyn Stearns
Executive Secretary
American Bridge, Tunnel and
Turnpike Association, Inc.
White Plains, N. Y.

Men Not Sealed In

Sir—The article entitled, "Floated Sections Joined as River Tube" (ENR May 22, p. 34), stated that "men sealed inside the concrete elements . . . remained in the unit as long as 24 hours at a time." This statement should be clarified.

The methods of sinking the tube elements of subaqueous tunnels were originated during design and construction of the Possey Tube in Oakland, Calif., which was constructed in 1928, and described by the writer in his recent publication, "Tunnels, Underground Structures, and Air Raid Shelters," (ENR Apr. 17, p. 134).

The element joints in the Posey Tube were sealed with flexible steel shield plates and tremie seal concrete. The manhole towers in the tube elements were provided for the facilities during sinking operations. Similar manhole towers were provided in the Deas Island Tube elements. However, the details of the manhole towers in the Deas tube were improved, and the manholes were equipped with various safety devices. Therefore, there was no necessity for men to be sealed in the elements continuously for 24 hours.

Anatol A. Eremin
California Division of Highways
Sacramento, Calif.

EDITOR'S NOTE: With escape hatches provided by manhole towers, as mentioned by Mr. Eremin, there may have been no necessity for men to be sealed in the tunnel elements for long periods. However, the project manager, confirms our original statement. The workmen did remain inside for as long as 24 hours.

Good Idea, Wrong Man

Sir—Your article, "Insulated Forms Protect Winter Pour" (ENR July 3, p. 56), said it was the contractor's idea to use an insulating blanket for winter concrete pouring at the Niagara Section of the New York Thruway construction site. This statement is incorrect.

Under the direction of Carroll F. Blanchard, Deputy Chief Engineer, Bridges, New York State Dept. of Public Works, investigation, study and research in placing and protecting concrete in cold weather began in 1954. During the winter of 1956-57 a limited number of contracts were permitted where insulated forms were used instead of conventional heated enclosures.

Then, on a study of data obtained, an "Alternate Specification for Producing Concrete in Cold Weather" was written in the fall of 1957. And it was under these specifications that Johnson, Drake & Piper, Inc., along with twelve other contractors, was permitted to function.

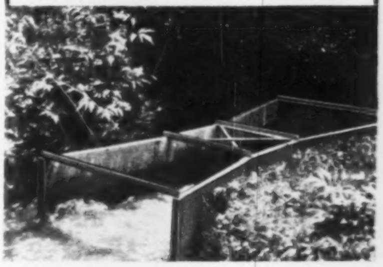
H. B. Britton
Assistant Civil Engineer
New York Department
of Public Works
Albany, N. Y.

Too Little Water

The size of Seattle's $22 million plan to develop a new water supply (ENR June 12, p. 134) was erroneously given as 90,000 gpd. The correct figure is 90 mgd.

Engineering News-Record welcomes expression of opinions from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

Accurate Parshall Measuring Flumes



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. . . in addition, a variety of sizes for black top plants, ready-mix concrete plants, building block plants, agricultural lime, and mine dust.

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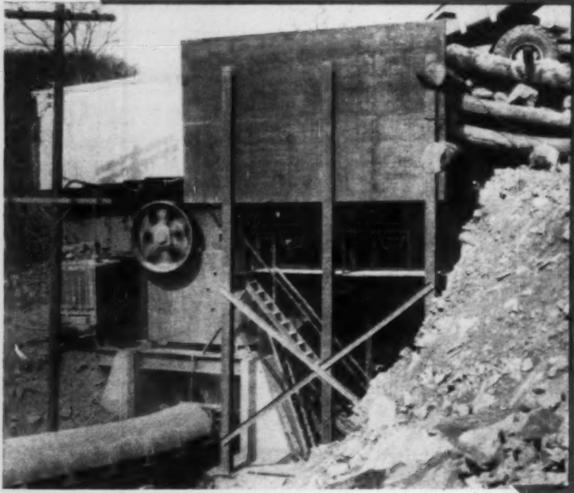
Telsmith Equipment in this plant is listed below. Send for Bulletin 266.



▲ Telsmith 48-FC Gyrasphere Secondary Crusher

◀ Telsmith 42 x 48 Jaw Crusher and one of two Telsmith 48" Heavy Duty Apron Feeders

▼ General view of plant which has six 5' x 12' Telsmith Vibro-King Screens

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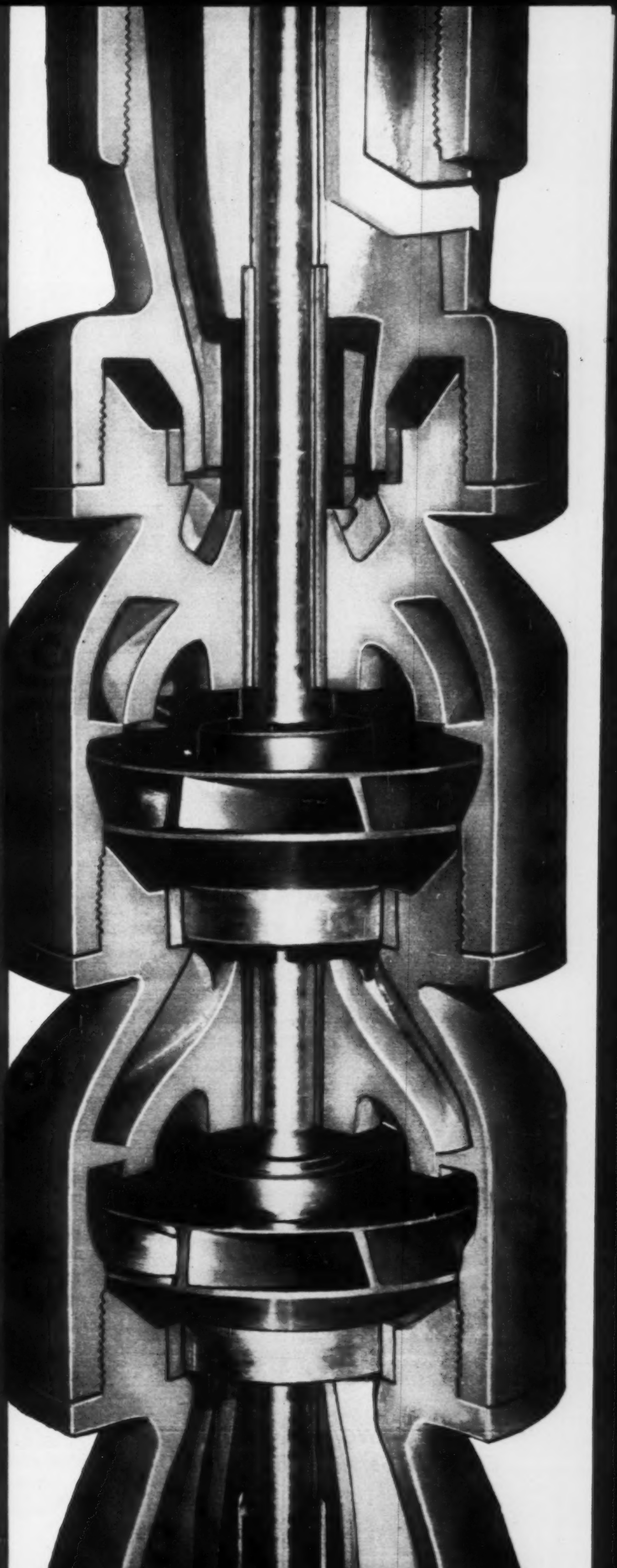

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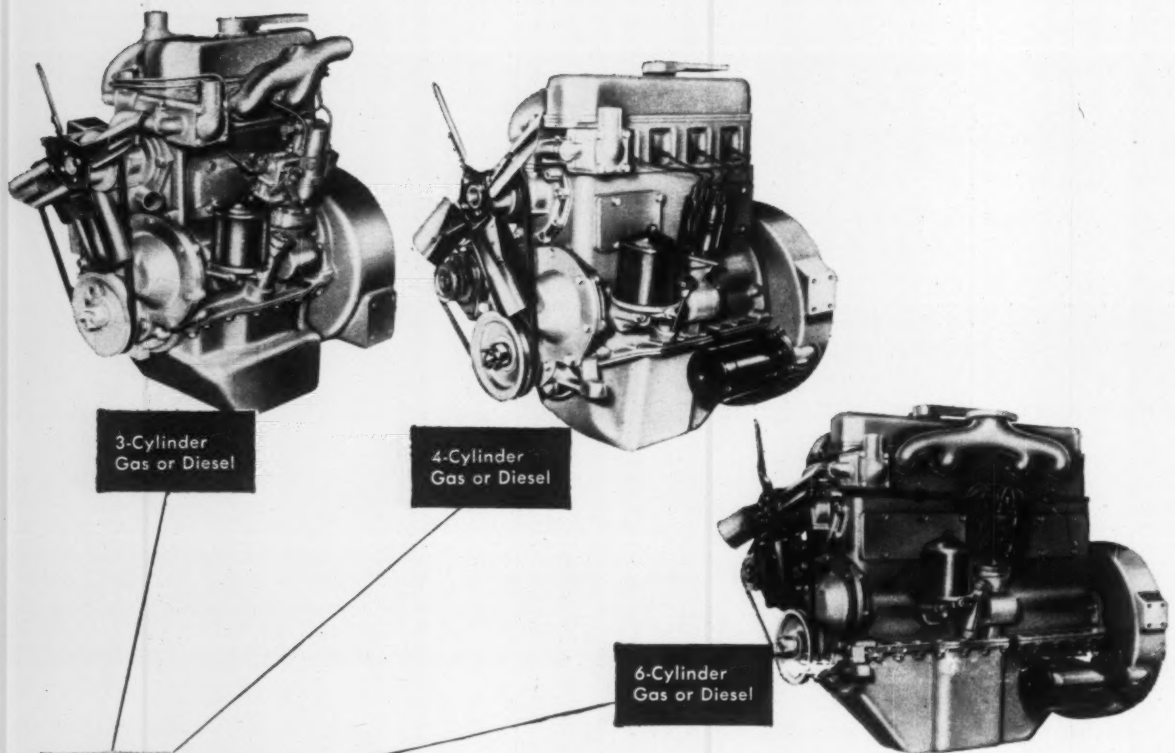

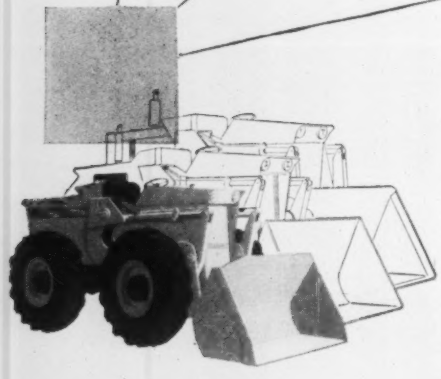

New DD and GO engines offer maximum parts interchangeability

HERCULES 3, 4, and 6 cylinder GO gasoline and DD diesel engines offer the user maintenance economy never before possible.

For when you specify Hercules power for all your equipment, you can reduce spare parts stock to a minimum. These new DD and GO engines were designed with the highest possible degree of wearing parts interchangeability: one set of spares will service some 18 engines, both gasoline and diesel. Of course, you can leave your engine service to Hercules world-wide distributor network and save even this minimum maintenance inventory expense.

If you'd like a quick visual demonstration of how this parts interchangeability can save you money, ask your nearby Hercules representative for your copy of an illustrated booklet. Or write Hercules Motors Corp., Canton 2, Ohio

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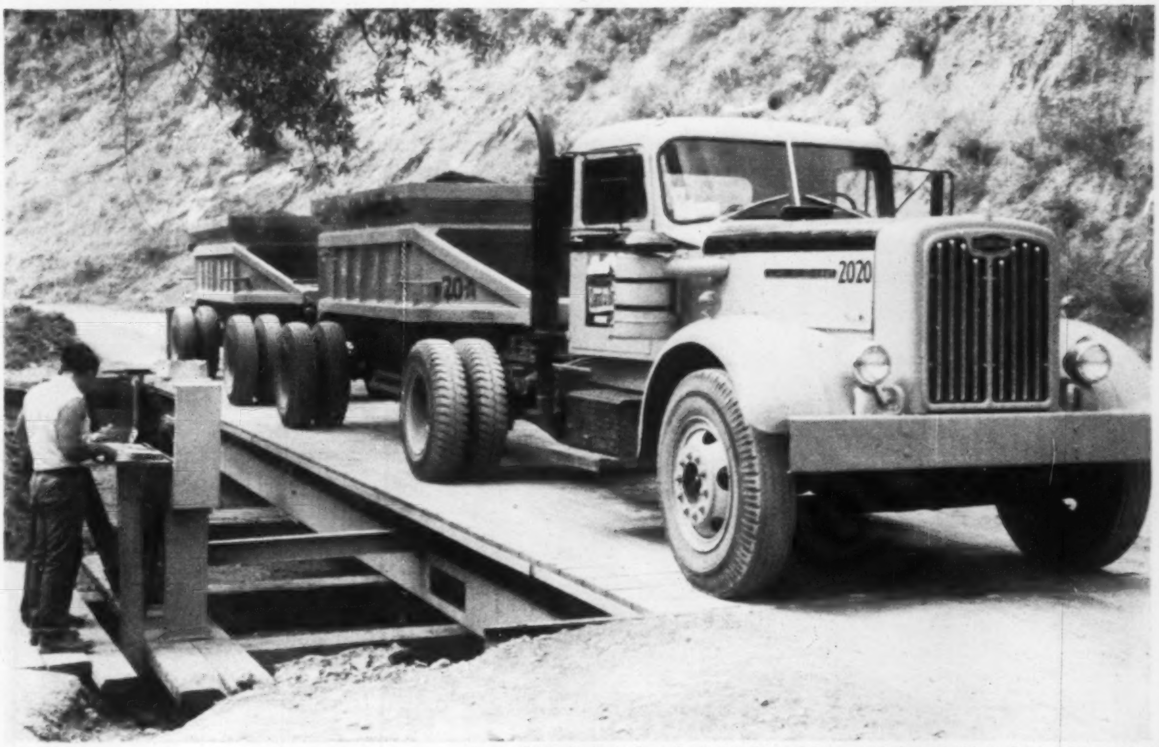


Fairbanks-Morse Type Registering Beam delivers punched weigh tickets; features large etched figures on chrome plated face plate, angled 45° for fast, easy reading from natural standing position.

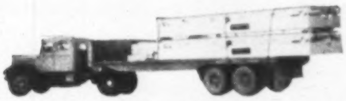
Here is a modern weighing idea that is catching on fast all over the country:

Load this rugged, simple, compact F-M Portable scale on a flat bed truck and haul it over any highway—right to your job site! No pit is required; you can set it on timber or concrete footings on top of the ground if you prefer. To increase length, just place another F-M Scale unit in tandem and connect the weigh beam to both units. Famous Fairbanks-Morse Type "S" parallel link suspension provides extreme accuracy and withstands heavy shocks.

F-M Portable Vehicle Scales are regularly equipped with either full capacity beam or type registering beam, but may be equipped with automatic dial and Printomatic. Standard models are available in 8 sizes from 20′ x 10′ to 60′ x 12′, and in capacities of 20, 30, 40, 50, 65 and 80 tons. Find out now how this streamlined system of on-site weighing can fit profitably into your operations. Write Fairbanks, Morse & Co., 600 South Michigan Avenue, Chicago 5, Illinois for new Portable Vehicle Scale Bulletin No. ASM520.1A.

EASY TO LOAD, EASY TO HAUL! Remove platform panels, disconnect transverse lever, tighten hold-down bolts—and standard models (1 and 2) become 8-foot wide units, ready to go anywhere. Wide frame models are simply loaded vertically for over-highway hauling, as in photo 3.

1



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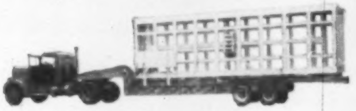

3

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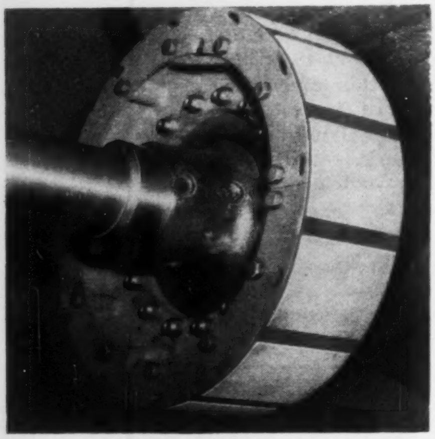
B.F.Goodrich

New B. F. Goodrich Hi-Torque Brakes help C. F. Replogle Co. cut cycle time



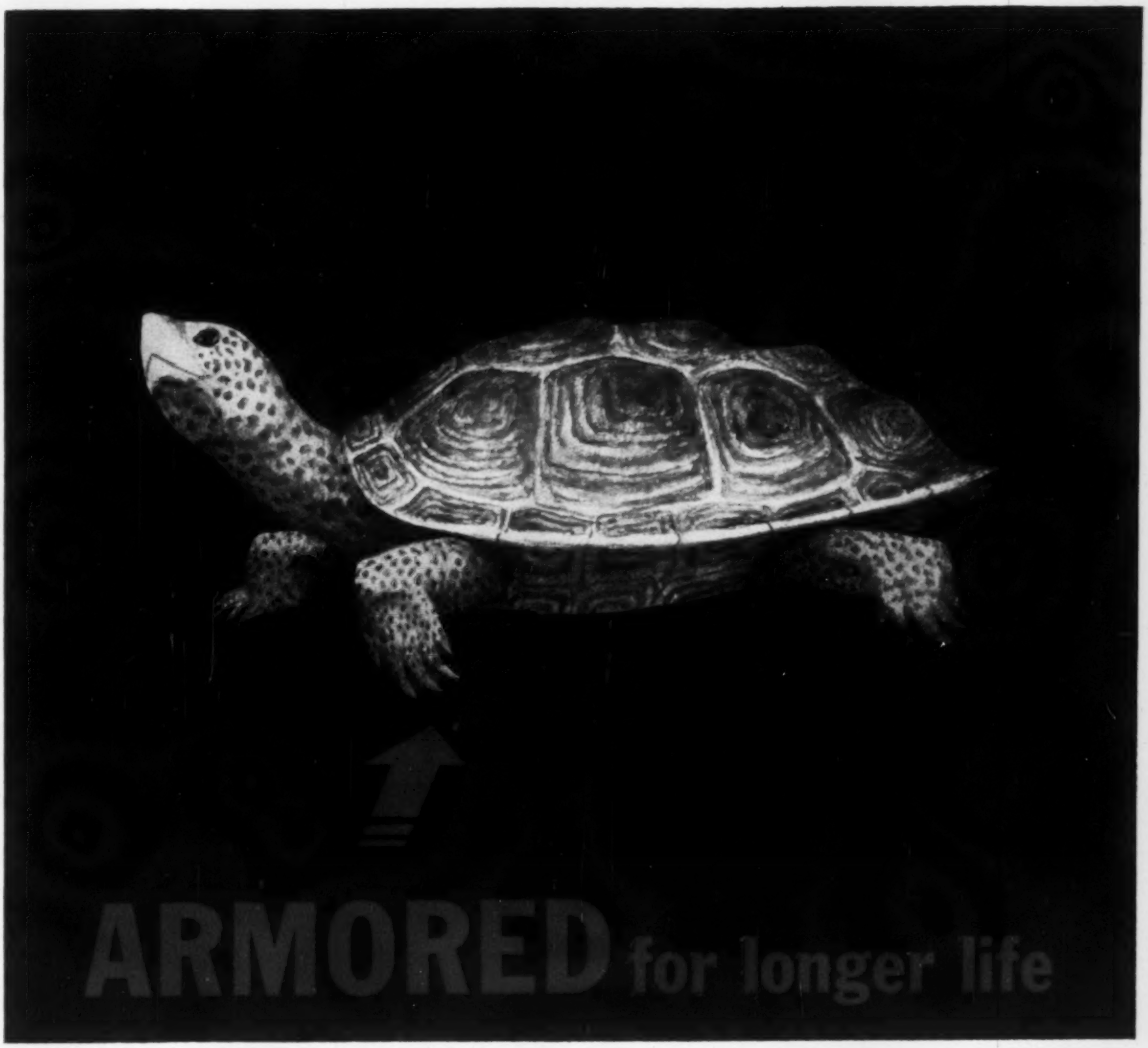
Full circle stopping power of B. F. Goodrich Hi-Torque Brake allows safe hauling in higher gear — because it stops heavy equipment twice as fast as conventional shoe brakes.

CIRCLEVILLE, OHIO — After months of actual operating experience with the new B. F. Goodrich Hi-Torque Brake, C. F. Replogle Company reports "a definite cycle time reduction". Replogle, prominent contracting firm in Ohio and surrounding states, attributes this reduction entirely to the new brake "which allows safe hauling in higher gear".

With the new brakes installed for comparison tests on tractor-scraper combinations and heavy dump trucks, Replogle discovered many other advantages over conventional two-shoe brakes. For instance, maintenance down-time is reduced considerably, since the brakes are self-adjusting throughout the life of the lining. Job capabilities are expanded because the brakes give smoother, faster stops with less chance of fade—enable Replogle to run on terrain operators considered unsafe using conventional brakes.

See how the *full circle* stopping power of B. F. Goodrich Hi-Torque Brakes can mean safer, more economical, more profitable operation of your own off-road equipment. Whether your field is construction, mining or logging, send for free booklet—The B. F. Goodrich Hi-Torque Brake. Gives operating features, specifications and test results. Write B. F. Goodrich Aviation Products, a division of The B. F. Goodrich Company, Troy, Ohio.

B.F.Goodrich **Hi-Torque brakes**



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PLYWOOD

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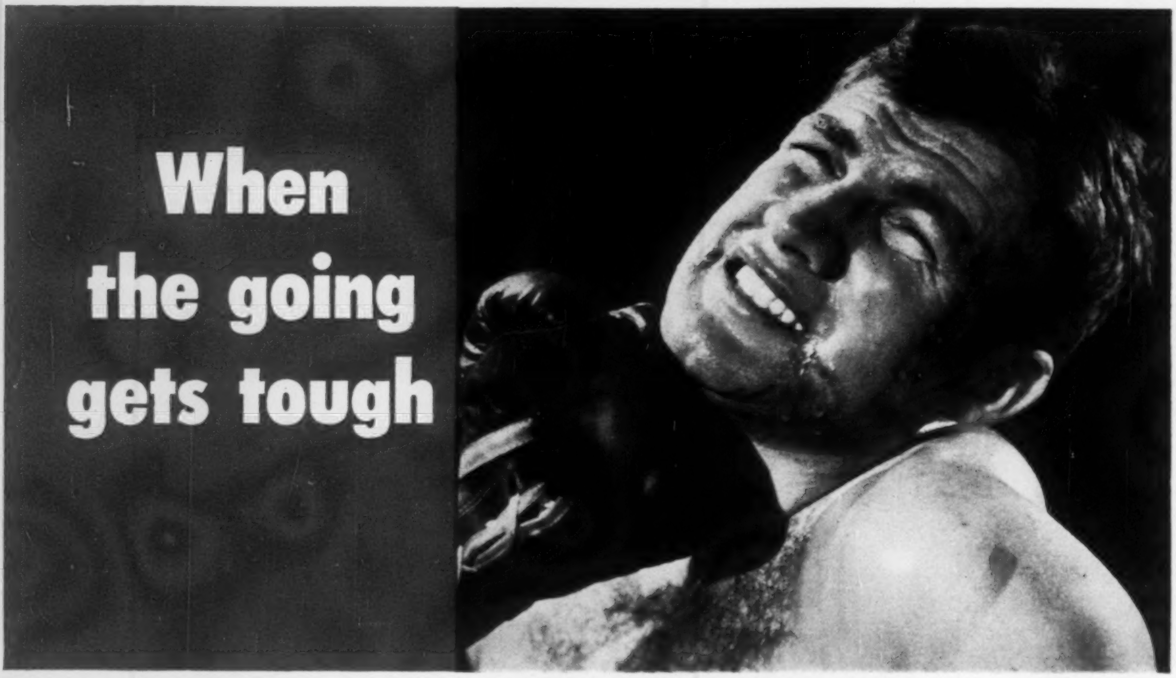
PD-85-B



Amoco Superior Diesel Oil S-1 has what it takes to handle severe engine operating conditions

Amoco Superior Diesel Oil S-1 (SAE 10 to SAE 50) is a special heavy duty motor oil developed to meet unusually severe engine operating conditions where unwanted, troublesome varnish, sludge, and carbonlike deposits form on engine parts.

This product provides effective lubrication for diesel engines operated under severe conditions even when using high sulphur fuels. It is also effective in controlling deposits in certain classes of particularly severe gasoline or other spark ignition engine operations. Recommended for API Service Designation DG-DM.

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Dump body mounted on Dodge 900 chassis with Custom cab.

Dodge Heavy-Duty Finance Plan is designed to save you money!

Need a new truck, but need to watch your working capital, too? The Dodge retail finance plan for heavy-duty trucks was designed for just that situation. It lets you operate modern, efficient trucks without burdening yourself with excessive finance charges.

Designed with the same understanding of truck problems that has made Dodge *Power Giants* outstanding, the Dodge Heavy-Duty Retail Finance Plan is tailored to your needs. Whether you need one truck or several, you can finance your purchase with a minimum down payment, and with lowest financing cost. Payments can be arranged over an extended period.

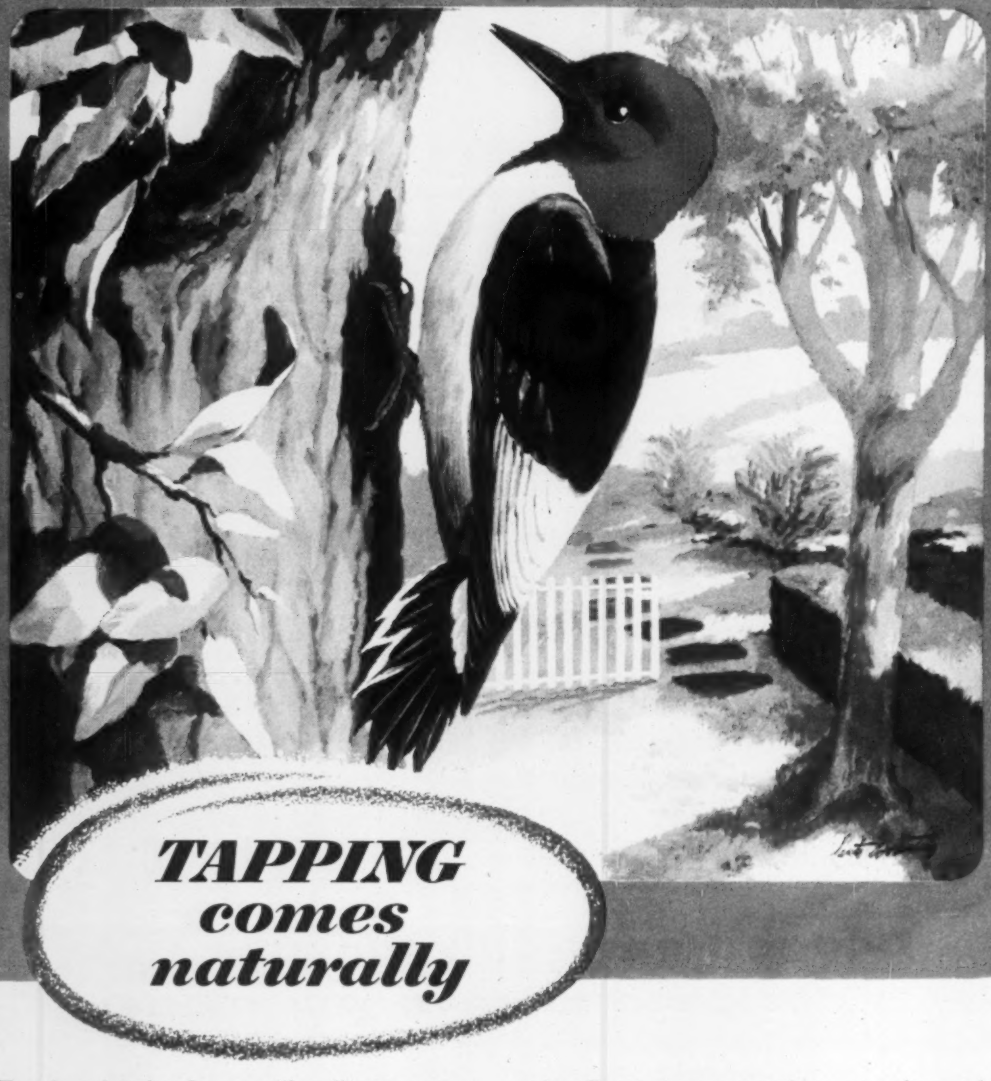
What kind of equipment can be financed with this plan? Any Dodge medium-duty, heavy-duty (400 through 900 models) or four-wheel-drive trucks, plus extra equipment, including bodies mounted on the trucks.

This new plan makes it both easy and economical for you to get *Power-Giant* advantages: exclusive Power-Dome V-8 engines that keep maintenance at a minimum . . . rugged "Job-Rated" construction . . . famous Dodge economy and dependability . . . advanced Dodge styling.

Let your Dodge truck dealer show you how this Heavy-Duty Retail Finance Plan helps truck operators with established credit own thrifty new Dodge *Power Giants*. See your dealer soon.

DODGE PowerGiants

LOCK JOINT ECONOMIES—One of a Series



TAPPING
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Tapping that involves no "bugs" may mean frustration to the woodpecker, but it spells economy and efficiency to the water works operator. This type of tapping comes naturally with Lock Joint Concrete Pressure Pipe.

Modern tapping equipment and technique have made the tapping of Lock Joint Concrete Pressure Pipe a simple, speedy operation. Small outlets for service connections, or larger ones for take-offs or cross connections, may be made under pressure with no danger of cross-threading or splitting the pipe.

Thousands of such pressure taps made in the field on Lock Joint Concrete Pressure Pipe attest to the reliability of an operation which, in no case, ever caused damage to the pipe being tapped.

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THE CONSTRUCTION WEEK

PROPHET OF DOOM—Unless bold and concerted action is taken to meet U. S. water needs, the nation faces near catastrophe within a generation. So said a subcommittee report approved last week by the House Government Operations Committee. The report criticized the Interior Department for "lack of urgency" in developing a cheap method of demineralizing salt water.

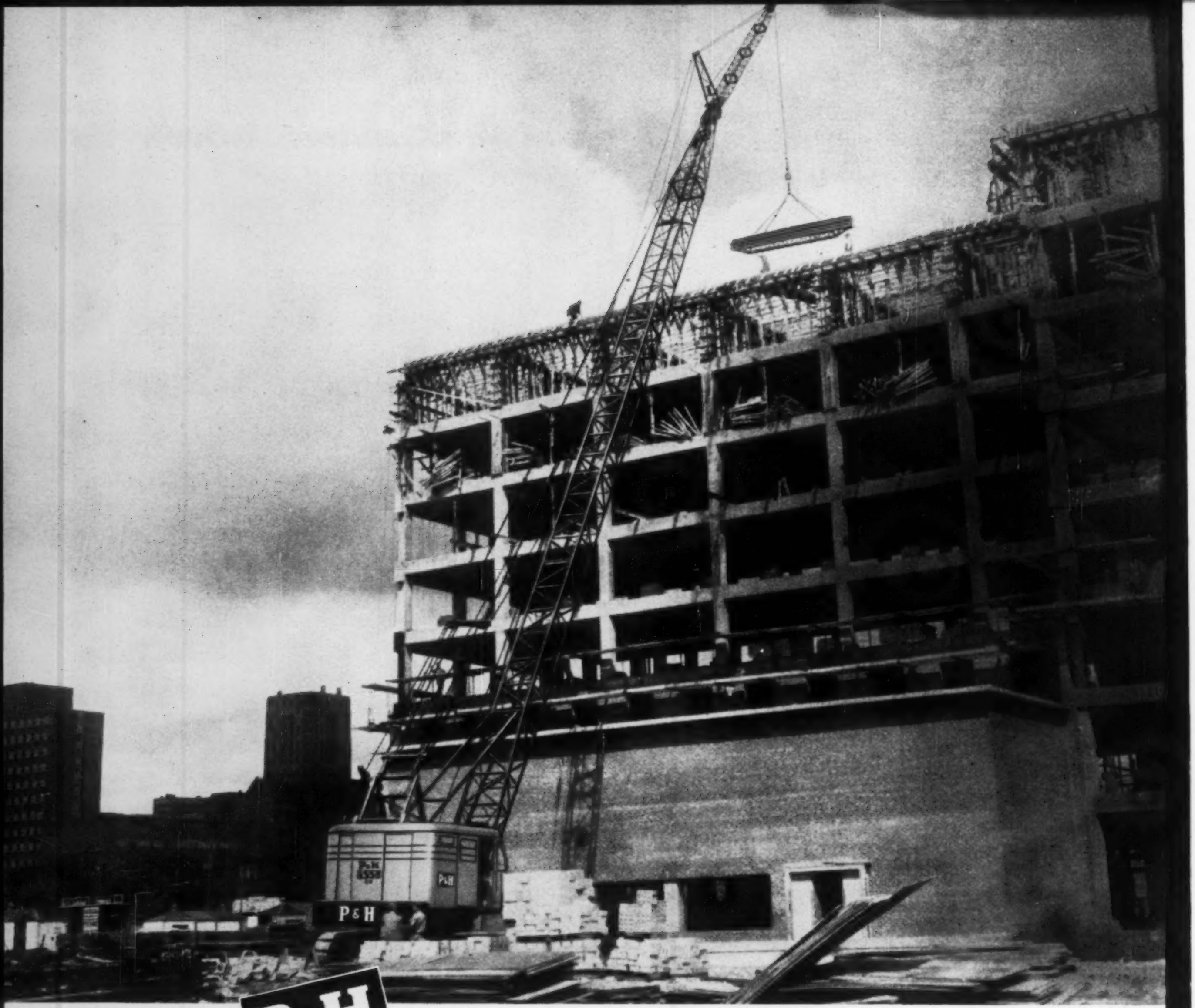
MINKS END HIGH JINKS—Now that some 11,000 northern Illinois minks have completed a "peaceful breeding season," contractors on a five mile stretch of the $441 million Illinois toll system have gone back to work. Road work was stopped five months ago when a mink farmer threatened to sue the Toll Highway Commission for $130,000 if construction noise lowered the reproduction rate of his "sensitive creatures."

BAGHDAD REPORT—Iraq's Development Board members have been dismissed and replaced by a committee made up of the ministers heading various government departments in the new regime. The old board included a British and an American member. Whether foreigners will be appointed to a new board is still under study.

ERECTION RESUMED—After a two-month shutdown to evaluate and correct shop welding defects found in a few of its members, California's Carquinez Straits Bridge is again under way. The bridge is notable for extensive use of high-strength steel and built-up welded members. American Bridge, which holds the $9.5 million steel erection contract, and the California Highway Department are convinced the repairs made are 100% effective. The shutdown will not delay the completion of the bridge, set for late this year.

THE JUDGE SAYS "BUILD"—Personal taste can't be legislated, a New Jersey judge has ruled. He ordered the Borough of Rockleigh to issue a building permit for a modern house. The town had restricted new structures to the existing early American style after plans were filed for a flat roof glass wall house. The owner went to court, and the judge said, "Build."

SOVIET HYDRO TROUBLES—Premier Khrushchev this week called for a switch in emphasis from water power development to steam plant building in Russia. He alluded to the longer construction periods required for hydro, and said traffic on navigation projects associated with hydro also has been disappointing. The Premier's statement is likely to dull the arguments of U. S. water enthusiasts who have been plumping for more spending to match the Russian progress.



“With P&H we saved buggying concrete 2 floors”

At the job-site of an 11-story Chicago hospital, operator Bob Michael was asked about the performance of this rugged P&H 50-ton capacity crawler crane. He said, “After the 7th floor, the boss figured on buggying concrete. We're already pouring on the 9th because this rig's got the speed and lifts higher. I like these big brakes and smooth hydraulic controls. I can ‘feel’ the load right in—spot quicker—even in ‘blind’ spots.”

Other features Bob Michael likes about the “855” is the P&H planetary boom hoist which raises and lowers the boom under power. It gives him the ¼ inch he needs for real precision work. And with the P&H live roller circle, he can swing right along with the men as they keep their hands on the concrete bucket and pour.

For high and heavy lifting, no other machine in the 50-ton class can match the workable capacity, speed, stability and accuracy of the P&H 855B-LC with long crawlers. That's why when owners and operators get together they agree on P&H!

SAYS Bob Michael, operator of 50-ton P&H 855B-LC.

HARNISCHFEGER
Construction & Mining Division
Milwaukee 46, Wisconsin

WASHINGTON OBSERVER

- **Airport spending boost in prospect**
- **Water projects move ahead in Congress**
- **Engineers eligible for scholarships**
- **AGC aims campaign at TVA construction**
- **U. S. fights local taxes on contractors**

- **As Congress comes down to the wire, the fate of legislation important to construction can appear rosy one minute, black the next.** Reason: A project that might not otherwise get by has a chance of slipping through unnoticed during the last-minute rush. Deals that otherwise wouldn't be adopted are made and kept as "the best we could get right now."

  In addition, there are a lot of grandstand plays made by Congressmen facing election this fall.

- **Airport construction will get a big federal boost.** There was still some dispute as Congress headed into the homestretch whether it will be $475 million (as the Senate wants) or $400 million (as a House committee approved) spread over the next four years.

  One cloud hangs over the legislation: a possible veto. The Administration opposes the bill and is becoming increasingly sensitive about Congressional acts that will add to impending deficits.

- **The $160 million Frying Pan-Arkansas trans-mountain water diversion project** was approved by the House Public Works Committee. But approval by the entire House isn't likely. The House has killed this project several times in years past.

  The $290 million San Luis irrigation unit for the Central Valley Project in California has been recommended by both House and Senate Interior committees. Odds are against passage this session.

- **Odds favor a new program providing scholarships to worthy college students, including engineers.** State commissions on scholarships would have the authority to pick students under standards laid down in the proposed law. The legislation's purpose is to further study of science, math and foreign languages; but the state agency will have all the latitude in the world in deciding which type of students to subsidize.

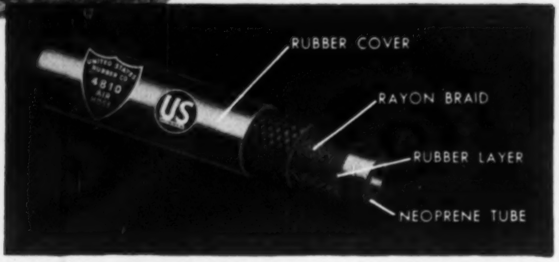
- **Associated General Contractors is firing up an industrywide campaign against the TVA policy of doing its own construction.** This is a fight that's been going on for years—ever since TVA was created. AGC wants the law changed to compel TVA to adopt competitive bidding from outside contractors to do its construction, as other federal agencies do.

  AGC is soliciting support from specialty contractors and professional societies as well as its own members. Success of private utilities in fighting the TVA bond-financing legislation gives some reason to believe that the pro-TVA bloc may be more vulnerable than heretofore.

- **Defense and AEC contractors are coming under increasing fire from local tax authorities** who claim tax payments on U. S. government-owned property in the contractors' hands (ENR Mar. 13, 1957, p. 24). The new claims stem from the Supreme Court's ruling last March that federally owned land, buildings, or materials used by private business for profit are no longer immune from state and local taxation.

  The Justice Department is fighting most of the suits on behalf of the contractors since added costs from new tax levies eventually would be paid by the U. S. taxpayer.

US RUBBER
4810 AIR HOSE



Where men and hose flex their muscles

Here's the hose that's as rugged as the men who use it. On the really tough construction jobs—where tight quarters, abrasive terrain and high working pressures take their toll of ordinary air hose—mandrel-made, wrapped-finish, U. S. 4810 Air Hose stands up to use *and abuse.*

Yet, despite its great strength, 4810 is no muscle-bound hose. "U. S." engineering has made it easier to handle, readily flexible, able to take higher working pressures—*and less expensive*—than the conventional air hose you might be using. It's one of a complete line of U. S. Rubber construction hose.

• • •

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Mechanical Goods Division

United States Rubber

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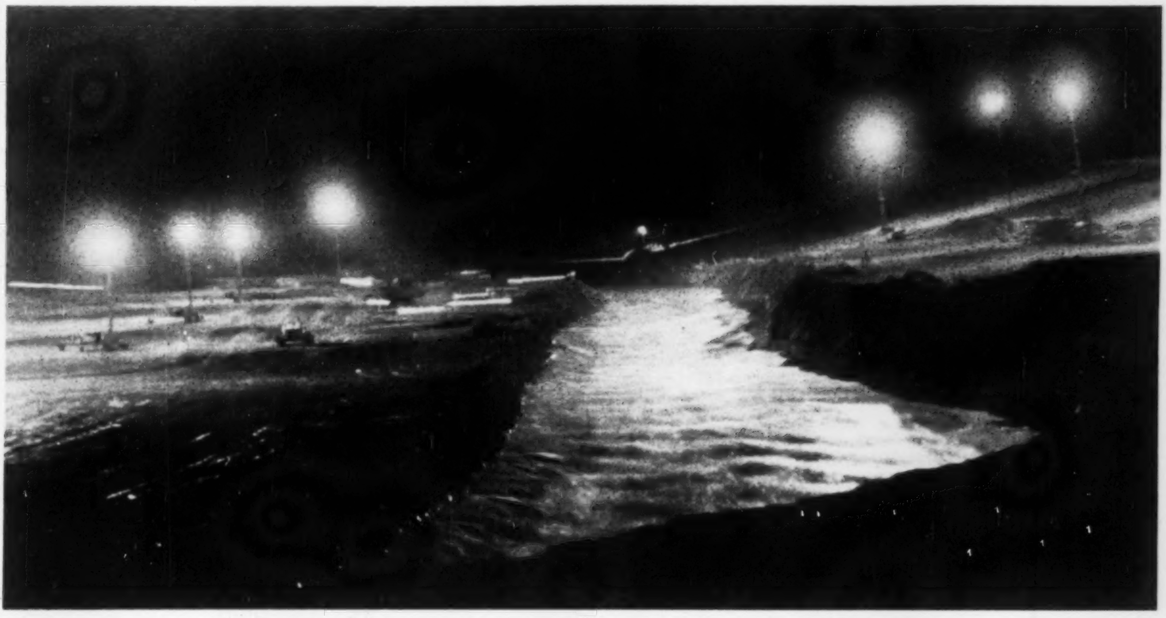
AUGUST 14, 1958

ENGINEERING NEWS-RECORD



1 AM Battle rages as swift-flowing river tries to carry away fill faster than it's placed.

Men and Machines Beat a River

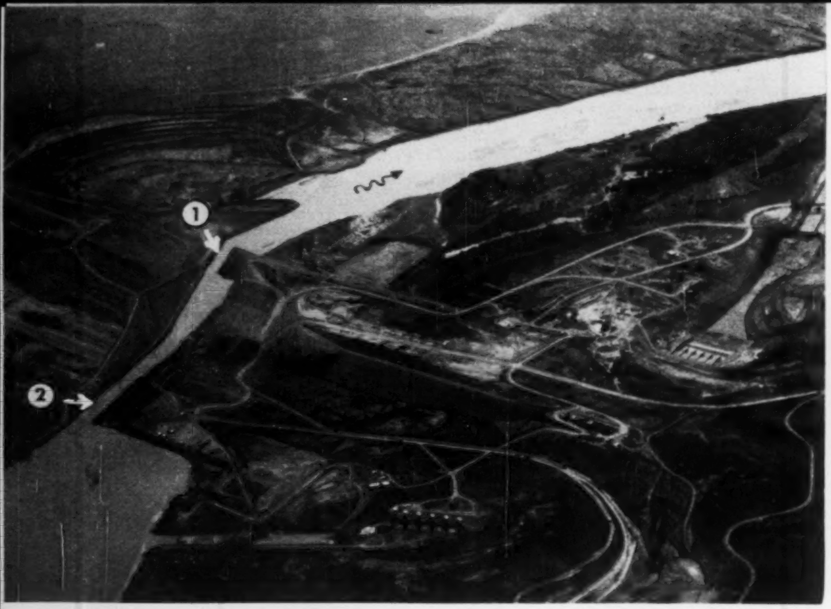
3:35 AM Two 30 yd loads stop the river and form a lake.

J. Roland Carr
Associate Editor

It was construction drama at its best last week as the mighty Missouri River was stopped in its bed at Oahe Dam. Contractor and Army Engineer know-how and a fleet of mammoth earthmovers were pitted against a narrowed, fast-flowing channel. For a tension-packed day and night, the earthmovers placed the closure fill while the river tried to carry it away. Just before sunup, Sunday, August 3, the river was beaten and Oahe Lake began to form.

Closure of the 91 million cu yd dam—world's largest rolled earthfill—was made by hauling 67,000 cu yd of shale an average 8,500 ft in 21½ hours. The shale was dumped and bulldozed along a 900 ft length of river channel that had been narrowed to 125 ft width four days before.

For project manager Carl "Rip" Collins of Western Contracting Corp. the 21½ hour closure was a critical period. Anything could have happened despite the best of preparations, which included all manner of electronic calculations (ENR Jan. 9, p. 78). For area engineer John W. Sibert, Jr., Corps of Engineers representative charged



CLOSURE PLAN: Final push started with downstream edge of right embankment 125 ft from left bank (1). When closure was made, diversion dam was built at (2).

ELECTRIC SHOVEL with 13 yd bucket loads 28 yd bottom dump in two big bites.

with making the brute force method succeed, it was a tense Saturday and Sunday morning.

And for other contractor and Corps of Engineer personnel, plus reporters and a sizable number of "hill-side" superintendents it was an inspiring accomplishment.

It started at 6 am Saturday and appeared to be almost a routine shovel-truck-bulldozer operation as shale was hauled from three loading areas about 1½ miles from the closure point.

During the first hour, 2,600 cu yd (bank measurement) was dumped into the closure channel. This was stepped up to 3,600 cu yd the third hour and hit a peak of 3,788 cu yd between 9 am and 10 am—the fourth full hour of operation.

This fast tempo was cut back, however, to keep from crowding the men and equipment. Over-all production averaged 3,200 cu yd per hr.

One giant earthmover was a disappointment. "Eucnik," an 80 cu yd end dump truck, being given its first heavy workout, blew the bottom cap off of its hydraulic cylinder as it started to dump its first load. It never did get back into the line.

• **Early start**—Closure was scheduled to start at 6 pm, August 2, on a 90 ft width of channel. Unexpected high water and the threat of more to come, however, prompted the contractor to start 12 hours earlier.

River flow at starting time was 8,800 cfs, instead of 7,000 cfs as expected. Moreover, rainfall along the Cheyenne River upstream was expected to increase the flow. Fortunately, the upstream river didn't increase markedly, although it didn't reduce much either. By noon the flow through the closure was choked to 8,000 cfs. At 6 pm it was 7,200 cfs and at midnight it was down to 3,300 cfs.

• **Tension mounted**—As the river channel narrowed and currents became swifter, old hands Collins and Sibert showed no visible sign of being perturbed. But the question of how much fight the normally sluggish Missouri would put up kept them under constant tension.

The constricted channel was flowing 18 to 20 ft deep at a velocity 10 to 12 fps. Powerful currents were scouring the opposite (left) bank and displacing the dumped shale under water. Some of the water's energy was dissipated harmlessly by hydraulic jump—the ragged banks causing turbulence in the flow.

The steady onslaught of heavy earthmovers dumping their big payloads of Pierre shale on the 900 ft front along the right bank of the river inched the fill across the turbulent stream.

• **Closure plug**—Actual closure occurred almost without warning, and for an instant was difficult to comprehend. That's normal in dump-and-bulldoze operations.

Two big truck loads of shale, about 30 cu yd each, made up the closure plug. They were dumped routinely at the edge of the closure channel where it had been narrowed to about 15 ft. Two heavy-duty tractors gently nudged the pile of shale into the channel. They kept going until the front edge of the shale pile suddenly made contact with the opposite bank above the surface of the water—and closure of Oahe Dam was made.

Other trucks, in turn, deposited their payloads in place, while bulldozers and heavy sheepsfoot rollers continued to build up and compact the closure fill against the threat of a sudden rise in river level.

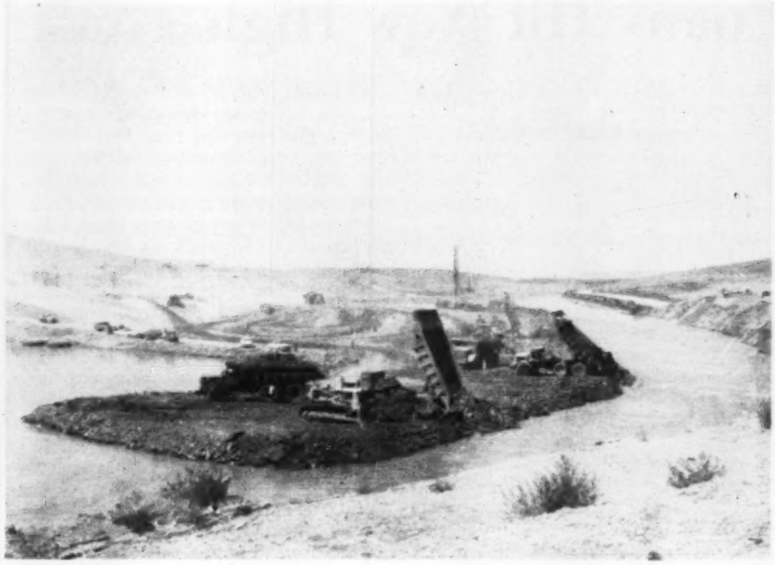
• **Diversion dam**—No time was lost by the contractor in continuing the carefully planned closure operations. A few minutes after placing the initial plug, he began building a diversion dam on Oahe's upstream berm, about 3,600 ft above the closure fill.

Three tractors worked each side of the river channel, which had been narrowed to 200 ft. They dozed stockpiled material into the slack water along a 350 ft front. More shale was hauled in by 15 big end dumps. The diversion dam was built up above water level in a few hours.

For five hours after the closure, there was no flow of the Missouri River below the dam. It took that long for the impounded water to rise high enough to start flow through the outlet channel and the lowest of the six flood control tunnels in the right bank. Within a week the Oahe pool rose to a depth of 25 ft, giving a discharge of 7,000 cfs through the tunnels. Within 30 days it will create a lake 50 ft deep and 50 miles long, the Corps of Engineers estimates.

Third step in last week's big show was to drain the water trapped between the closure fill and diversion dam.

An 8 yd dragline started excavating



50 TON END DUMPS drop 32 yd payloads of shale along 900 ft front while big tractors doze them into river. Note relative sizes of men and machines.

BREACHING channel cut by 8 yd dragline drained pool between closure and fills.

a trench in the closure fill a few hours after closure was made and before the diversion dam was completed. Actual breaching of the closure fill, however, didn't come until the diversion dam was raised above water level. This lowered the water below the diversion dam to tailrace level and helped further construction of the diversion dam, which is becoming part of the main embankment. A sheetpile cutoff of seal was driven in this area.

• **Equipment line-up**—For sheer power and earthmoving capacity, the integrated train of heavy-duty equipment for the closure was probably one of the largest ever assembled for such an operation. It included two electric shovels with 13 yd dippers and an electric dragline with 14 yd bucket, which helped close Fort Randall Dam in 1952. One 8 yd dragline was standby.

The three loading areas are adjacent to each other. The two shovels worked 25 ft vertical faces, while the dragline operated on a flat bench just above one of the shovels. All three loading zones had been cleared of overburden and shot lightly with powder. This produced large pieces of shale and enabled fast loading.

Shale hauling equipment included twenty 50 ton end dump trucks with 32 cu yd of capacity each, and ten 25 yd bottom dump trucks. The fleet dumped an average of two truck loads per minute into the closure channel, for an average of 3,200 cu yd per hour.

At the river, up to six heavy-duty tractors dozed the shale into the channel along 900 ft of the right bank. In the final closure stages, three others dozed stockpiled shale into the channel from the opposite bank.

Original plans called for closure along a 600 ft front, with provision for adding a 300 ft training dike at the lower end if necessary. When flow as closure time became 8,800 cfs, instead of the planned for 7,000 cfs—the contractor began by working the entire 900 ft front.

Three big dozers operated in the loading zones to keep the areas clear and speed truck loading. Other major equipment included sprinkler trucks and motor graders to keep the haul roads, which took a bad beating, in reasonable condition, several portable generating plants powered multi-floodlights to light the working areas.

Standby equipment was nearly as impressive as the earthmovers on the line. A number of dozers equal to those operating were on hand. There were also ten 50 yd end dumps and a dozen 25 yd end dumps on tap.

These extra trucks and dozers were not brought to the job just for standby. They are part of Western's $8.5 million equipment inventory (replacement value) for its current $9 million contract for Stage 6 earthwork at Oahe. This involves 24 million cu yd of excavation and includes the closure.

• **Western's stake**—Western Contracting Corp. has also held five of the eight prime earthwork contracts at Oahe during the past seven years. These totaled $29 million and involved excavation of 77 million cu yd of overburden and shale and placing of 61 million cu yd of embankment.

Western has hit an average daily production of 100,000 cu yd of excavation on its present contract, working two 10-hour shifts, six days a week.

In 1956, Western set a daily record at Oahe for load-and-haul operation by moving 143,000 cu yd of material. In addition, the contractor holds an outstanding safety record: 1,877,000 man-hours without a lost-time accident for work performed at Oahe Dam.

• **The biggest**—Oahe Dam has been under construction since September 1948. It ranks as the world's largest rolled earth dam. Located just above Pierre, S. D., it is the fifth big dam on the mainstem Missouri. (Fort Peck Dam, on the upper Missouri in Montana, is a 125 million cu yd, hydraulic fill, 250 ft high and 21,000 ft long.)

Oahe's 9,300 ft long 91 million cu yd embankment will rise to a height of 242 ft above riverbed and create a reservoir containing 23.6 million acre-ft of water (maximum operating pool).

Oahe's seven 85,000 kw generating units will have a total capability of 595,000 kw. The first is scheduled to go on the line in July 1962.

Construction of the $390 million Oahe project is being supervised by the Omaha District, under Col. D. G. Hammond. John Sibert is in charge of the Oahe Area Office. Charles R. Brown is assistant area engineer. Resident engineers are: Albert Arrington, outlet works and powerhouse; Lew Leavitt, earthworks; and Harry Dobbins, relocations.

For Western Contracting Corp., A. Blackwell is general superintendent under Rip Collins. L. Garland Everist is construction manager.

Public Works Loans Hit New High

Interest-free federal loans are stimulating more local public works planning than at any time since Congress authorized the present program four years ago.

Loan commitments during the past year shot up to a new high, with $11.6 million of planning funds allotted to 432 local projects that will cost nearly $700 million to build.

These planning advances in the fiscal twelve months ending June 30 raised the four-year total for the program to 784 local public works projects with an over-all estimated cost close to $1 billion. Planning for these works is financed with federal advances that add up to just $17.5 million.

Over $1 million of the money advanced to local public works agencies has come back to the federal government as projects went into construction. The loans become due and repayable without interest when the work contemplated by the approved plans is placed under construction. If a public agency undertakes to build just part of a planned project, it repays only a proportionate amount.

• **Repayments help**—Repayments have helped the Community Facilities Administration, which handles the program in the Housing and Home Finance Agency, to maintain the accelerated pace of loan commitments from the revolving fund during the last year. Congress had appropriated only $17 million over the years to carry the operation through fiscal 1958. By June 30, CFA had more than $16.5 million outstanding in loan commitments.

Without the repayments from $57 million worth of projects under construction, the agency would have had to slow down on new loan approvals. There had been a marked speedup in the rate of new planning commitments during the year. New loans approved in the final April-June quarter of the fiscal period, accounted for about 40% of the year's activity.

In those three months, the agency approved more than $5.4 million of planning advances for 166 local projects that will cost in excess of $310 million. By comparison, the figures for the same period a year earlier showed less than $1 million in advances approved for 63 projects costing not quite $44 million.

• **More money in pot**—Right now, the agency is awaiting final approval of another $7 million appropriation to continue the fast pace of loan approvals. Some 200 applications are in line to be acted upon. The delayed appropriation was expected to go through this week, boosting the revolving fund to $24 million. Congress has authorized $48 million, but told CFA to come back for more money as the agency needs it.

Another program to help build local public works—through direct federal loans to finance the building of the projects—has no such bright future. The House has killed all chances of increasing the present $100 million loan fund. Advocates wanted a fund of $1 billion or more, at the same time lowering the interest rates. Under present law, HHFA establishes interest rates that do not compete with private financing for communities with good credit ratings. As a result, the federal loans have little appeal and serve mainly as stopgap financing until bonds can be sold.

There was a slight pickup in these loans, however, after President Eisenhower ordered acceleration of the program last March. In the following three months, CFA approved $17.7 million of construction loans for 36 projects, compared with $8.2 million for 56 projects in the same period of the previous year. In the three years of the program, the agency up to June 30 had made $43.5 million of loans for construction of 155 local projects.

How Economic Decline Hit Consultants

A new ENR analysis shows big consulting firms were hardest hit by last year's slump. On the other hand, small firms continued their growth. The study covered firms doing $100,000 or more in new business in 1957.

The number of engineers above the minimum dollar volume slipped 7% to 1,555 from the record of 1956. Moreover, the number of projects dropped 13% to 4,935 and dollar value skidded 28% to $6,544 million. Even a 14% increase, to $307.5 million, in value of federal work handled by consulting engineers failed to offset the slump in all other assignments.

• **Hardest hit**—The top-size firms were most severely hit. The 734 firms in the $1 million-and-over bracket handled 3,650 projects valued at over $6.2 billion—a drop of 12% in the number of firms. They also suffered a 16% decline in projects and a 29% slip in contract value from the 1956 record of nearly $9 billion.

In contrast to the largest firms, the 261 consultants doing from $500,000 to $1 million of new design work in 1957 showed a drop of only 6%. Their 511 projects are only 10% below the number designed in 1956. Their new business dropped only 7% to $166.9 million from the record-breaking $179.8 million last year.

• **Growth**—More surprising, however, is the continuing expansion of smaller consulting firms—those doing from $100,000 to $500,000 annually. In this group, 560 firms hit the $100,000 mark for new business. That's a new record, up 1% from the 1956 peak. They designed 774 projects, up 3% from 1956, but below the record of 864 established in 1953. The value of new design business booked by these firms edged up fractionally to a new high of $134.2 million.

• **Greatest strength**—Consulting engineers found building projects in 1957 holding up better than other jobs. Buildings slipped only 20% under 1956 to $3,219 million, compared with a 34% slide in other-than-building jobs to $3,325 million. Moreover, industrial building design was only 10% below 1956, despite a 42% drop in industrial building awards during 1957. Almost all of this work is in the hands of the big firms.

Other building design jobs (mass housing, commercial and public building) were valued at $1,641 million, a drop of 27%. These jobs also went mostly to the $1 million-and-over firms.

• **Other-than-building**—In this category, highway work continues to be the biggest market for consulting engineers with a total of $771.6 million. This held despite the decline in tollroad construction. But the total is a 64% drop from 1956 when well over $2 billion of highway projects went to consultants. The decline appears to confirm a forecast of the American Association of State Highway Officials that use of consultant engineering firms by state highway departments is on the decline. Only the $100,000 to $500,000 firms scored increases in highway work during 1957, increasing by 46% both the number of firms in this work area and the number of projects handled. The value of jobs designed was also boosted 49%. Total value of highway work among the firms in this dollar volume category is small—$12.5 million.

Trouble Brewing?

Corps bid proviso shuts out foreign producers

International complications are resulting from Army Engineer bidding requirements on transformers for Fort Peck Dam. Italy is protesting to the State Department, saying that one of the Engineers' provisions excluded Italian manufacturers from bidding. There is a strong possibility that other countries may make similar complaints.

At issue was this provision in invitations issued August 1 by the Garrison District of the Corps:

The bidder shall have available, or under construction in the United States or Canada, repair and test facilities of adequate size to service the equipment being proposed—in this case, the transformers.

Purpose of the clause, Army Engineers say, is to assure repair services for equipment essential to national defense in times of war or other emergency. But the blunt wording of the specification makes it look like a direct blow against foreign manufacturers, because domestic producers have long argued in favor of the service requirements.

The Corps of Engineers, however, has long urged the protective provision for national security reasons. It made formal request to the Secretary of the Army in July 1957 for permission to do so. On May 16 it received permission to apply the test-and-repair requirement where the Engineers deemed it necessary. On the basis of this discretionary authority, the Chief of Engineers approved its use in the specifications for Fort Peck transformers.

Civilian agencies of the federal government, however, have received no equal power to determine what equipment is essential to national defense. The Interior Department recently denied a request of the Bonneville Power Administration to invoke the test-and-repair clause in specifications for a transformer. It urged that the equipment was not essential and could be bypassed in case of failure.

On other equipment proposals, where defense needs seem critical, Interior refers the question to the Office of Civil and Defense Management.

Critics contend that Army use of the clause will nullify the gains that foreign manufacturers made during President Eisenhower's first term when the chief executive liberalized so-called "Buy American" act requirements.

The whole policy problem kicked up by the Corps of Engineers' action went back to the Secretary of the Army last weekend for resolution.

Tokyo's Imperial Hotel,* designed by Frank Lloyd Wright, gets a . . .

IMPERIAL HOTEL

10 story addition, designed by a Japanese, 43 years later, but . . .

It Isn't Right According to Wright

It's an "outrageous insult to the feeling and character of the original building." That's what Frank Lloyd Wright says about the new 10 story wing just added to Tokyo's Imperial Hotel. The American architect designed and supervised construction of the earthquake-resistant hotel in 1915.

The structure was completed in 1922, and in 1923 withstood the great Kwanto earthquake, while most surrounding buildings fell to rubble. And it survived World War II.

But now, "westernization" has done what war and nature could not, says Mr. Wright. The $9 million addition is a "cultural tragedy" to the people of Japan, the 89-year-old architect claims.

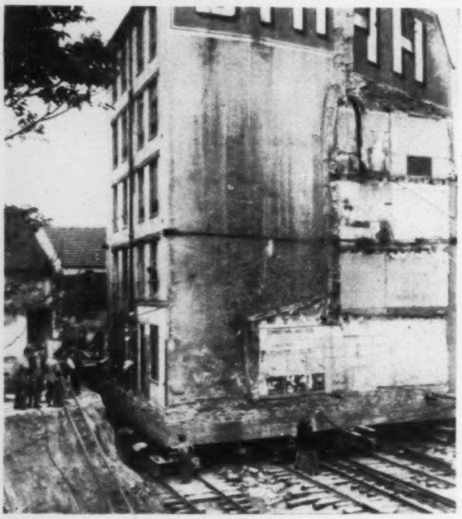
The Imperial Hotel "was not built for the West, it was built for all of Japan and I was one of the first Westerners to take my hat off to Japanese traditions," he said. "The new wing marks a trend of architecture toward sterilization."

The man who designed the Imperial addition is 66-year-old Teitaro Takahashi, one of Japan's leading architects. He says, "Wright's building is not at all Japanese, as he claims, and many of its facilities are now outdated. It was nicely designed for its period—but that was the Rickshaw Age."

The new addition will double the hotel's capacity by adding 450 rooms.

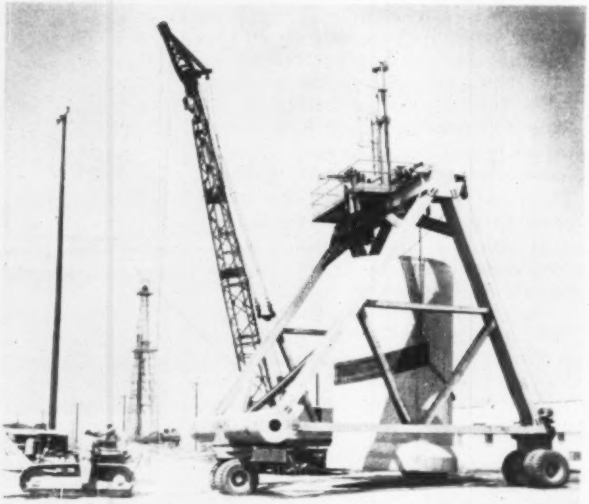
* *Photo credit: A Testament by Frank Lloyd Wright, Horizon Press, New York.*

Engineering News-Pictures



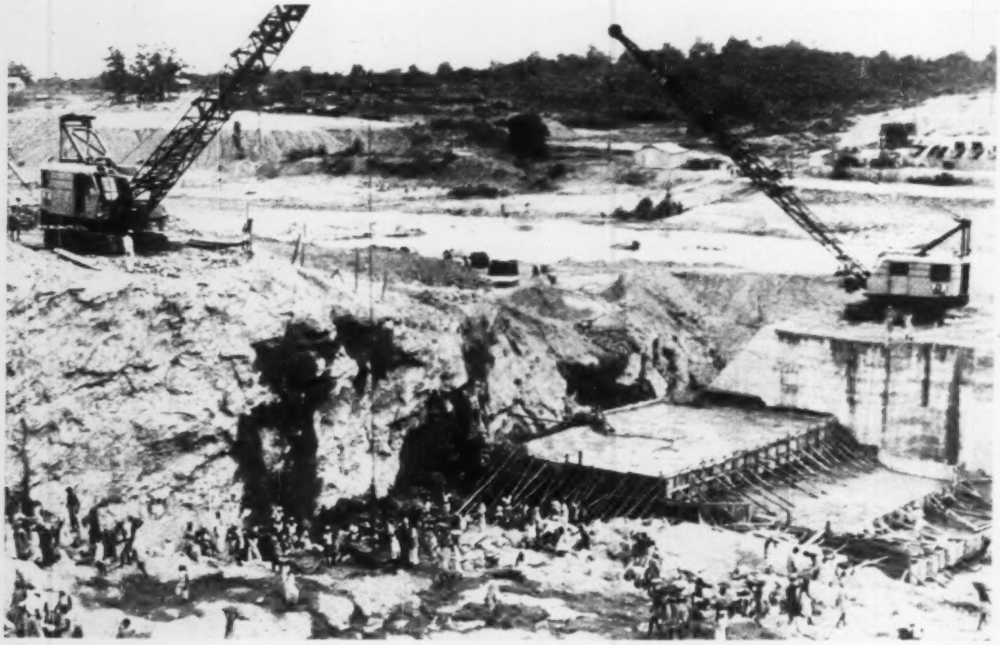
How to Move Without Moving

The 35 tenants stayed right in this building when it was moved 30 yd in Livry-Gargan, France. Utilities were fed to the 1,000 ton building through flexible conduits as it moved along at 6 yd per hr.



Rig Handles 90 Ton Pipe

What may be the heaviest precast pipe produced—85 ton sections, 12 ft in dia and 24 ft long—will be handled by a special 90 ton rig built by United Concrete Pipe Corp. Pipe is for Los Angeles' Hyperion sewage plant's 5 mile ocean outfall.



Study in Contrast: The Old and New in India

Large cranes at work on India's Konar Dam in the Damodar Valley contrast with the large number of hand laborers still employed on the project. Few dispute the economic superiority of modern construction machinery in India, but the country's population and political climate often require antiquated methods.

Dam Experts Coming From 40 Nations

GAIL A. HATHAWAY
International Commission President

FRANCIS S. FRIEL
Chairman of the Host Committee

The world's foremost experts in the art of designing and building dams will convene in the Statler Hotel, New York City, September 15, for the Sixth International Congress on Large Dams.

Advance registration is already approaching 500, and a total attendance in the neighborhood of 1,000 is expected. Anyone wishing to attend the congress should write immediately for registration forms to Stewart E. Reimel, secretary-treasurer, U.S. Committee on Large Dams, 29 West 39th St., New York 18, N. Y.

The meeting is sponsored by the International Commission on Large Dams, a permanent body with headquarters in Paris. The commission is closely allied with the World Power Conference, which will hold a sectional meeting in Montreal, September 7-11. Many of those attending the Montreal meeting will come to the Dam Congress in New York via a specially conducted tour of the St. Lawrence hydro project and the Shippingport (Pa.) nuclear power plant.

Delegates to the Dam Congress will represent each of the 40 member countries of the International Commission on Large Dams, which range in size from tiny Laos to the U.S.S.R., and in geographical spread from Australia to Yugoslavia. Such highly developed dam building countries as Switzerland, France, Italy and Germany will be represented, while at the other end of the scale such underdeveloped nations as Egypt, India and Thailand will send delegates.

After five days of technical sessions in New York, those attending the congress will divide into three groups for week-long study tours of dams in the Southeast, Midwest and Northwest sections of the U.S. Local committees of engineers in those regions have worked hard to assure that the tours will be technically profitable and entertaining. (ENR will publish a special section on dams in the September 11 issue.)

The current president of the International Commission is an American, Gail A. Hathaway, engineering consultant to the World Bank and formerly special assistant to the Chief of Engineers, U. S. Army, on flood control and water resources matters. Host for the meeting is the U.S. Committee on Large Dams of the International Commission. Francis S. Friel, consulting engineer of Philadelphia, is chairman.

Organized to encourage improvement in the design, construction, maintenance and operation of large dams, the International Commission sponsors the congresses at about three year intervals in different parts of the world. The last three have been in Paris, New Delhi and Stockholm. Not since 1936 has one been in the United States.

The technical programs of each congress are based on four questions selected by the executive committee of the International Commission as being of foremost importance to dam design and construction progress at the time. Papers are prepared on these questions by engineers in the member countries. These are printed and distributed by the headquarters staff prior to the congress. A summary of the points covered in the papers submitted on each question is presented at the congress, but meeting proceedings are devoted entirely to discussion.

At the Sixth Congress this year the four questions to be discussed are:

- Heightening of existing dams, including methods of construction of new dams in successive stages.
- Observations of stresses and deformations in dams and in their foundations and abutments, including a comparison of these observations with computations and tests on small scale models.
- Compaction methods and moisture content for materials used in the construction of earth core and supporting fill for earth and rockfill dams.
- Use of admixtures and pozzolanic materials in concrete for dams and the influence of the finer sand particles.

The Sixth Congress technical sessions in New York will be accompanied by numerous social events arranged by the U.S. Committee. Financing of the congress has also been the responsibility of the committee. All funds for a budget of $75,000 were contributed by individual engineers, consulting firms, contractors and others in the U.S. construction industry. Previous congresses abroad have been largely financed by the governments of the host countries.

In addition to Mr. Friel and Mr. Hathaway, other members of the U.S. Committee on Large Dams who have played prominent parts in the planning are: William F. Uhl, of the Boston consulting firm of Chas. T. Main, Inc.; Gerald T. McCarthy of Tippetts-Abbett-McCarthy-Stratton, consulting engineers, New York City; Commissioner W. A. Dexheimer, U.S. Bureau of Reclamation; F. B. Slichter, chief, Civil Works Engineering Division, Corps of Engineers.

Also Samuel B. Morris, consulting engineer, Los Angeles; A. T. Larned, chief civil engineer, Ebasco Services, Inc., New York City; Clarence E. Blee, consulting engineer, Knoxville, Tenn.; George K. Leonard, chief engineer, Tennessee Valley Authority; L. N. McClellan, consulting engineer and former chief engineer, U. S. Bureau of Reclamation; Stanley M. Dore, chief engineer, New York City Board of Water Supply; and Waldo G. Bowman, ENR's editor.

Higher Income Tax Eases Delaware's Budget Plight

A show of strength in June revenues appears to have spared Delaware's budget from expected cuts and eased the state's financial plight. The $10.4 million inflow indicated that sufficient taxes were voted last winter to reduce the expected $27 million deficit to about $7.5 million, "a manageable amount."

The legislators yielded to Gov. Caleb J. Boggs' demand in April to retain the boost in personal income taxes (ENR May 22, p. 99). Now the added funds are coming in. Besides a healthy rise in June revenues, there is also good news in reports on the full fiscal year, which ended June 30: Revenue is up.

Right-of-Way Claims

Proposals made to get smoother, faster operation

Decentralize handling of small right-of-way claims.

Make a 75% advance payment to property owners to ease burden of relocation.

Have more time between approval and start of construction of highway projects.

Those are some of the recommendations made by an outside consultant engaged for a study of the Pennsylvania Highway Department's right-of-way operations.

And to hack away at a $70 million backlog of right-of-way claims, Henry J. Kaltenbach, president of Right-of-Way and Legislative Consultants, Inc., Washington, D. C., suggests: more careful analysis and classification of unsettled cases; further increase in the right-of-way division central office and district offices staffs; and speed up procedures.

Under existing regulations, all claims of over $500 must be cleared through the central office. The consultant recommends that the minimum figure for central clearance be increased to $2,000. Smaller claims would be handled by the district offices.

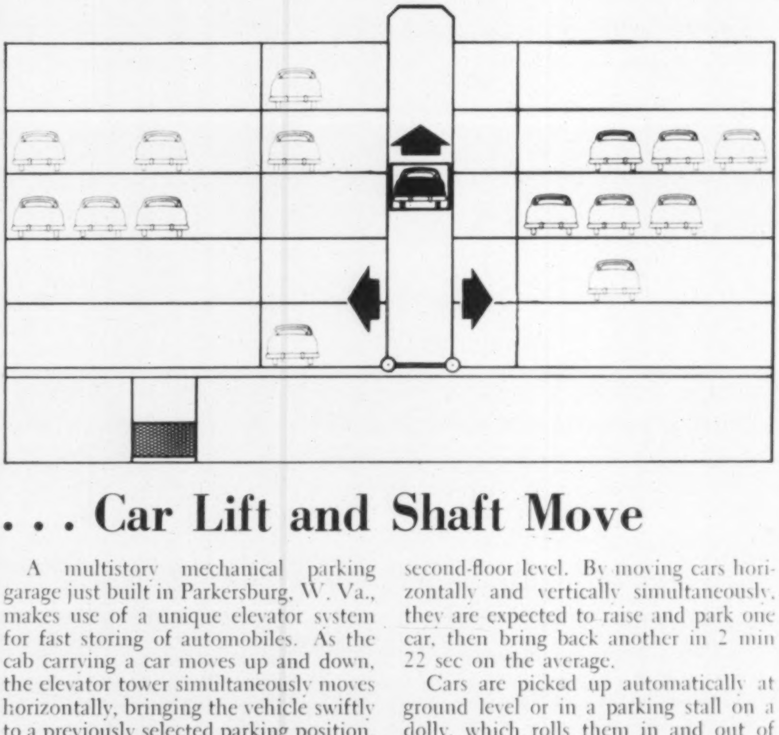
There is a need to clarify to the division's personnel the payment of 75% of the state's offer at once to ease hardship on property owners short of money for other accommodations, the report states. The difference is paid after agreement is reached. (In actual practice, however, the Highway Department notes that owners are reluctant to avail themselves of the advance payment.)

The report suggests that to give sufficient time for property owners to be contacted a longer interval is needed between the time the governor signs construction plans and advertising of contracts. Also recommended in this area: more than 10 days be stipulated in an eviction notice; more work be done on right-of-way prior to signing of construction plans; settlements be paid as promptly as possible; all property owners involved in a single project be notified at about the same time, even though parts of the project may be in more urgent need of attention.

One other suggestion in the report calls for the right-of-way division to be directly responsible to the Pennsylvania Secretary of Highways—now Lewis M. Stevens—rather than to the chief engineer.

Mr. Kaltenbach will be paid $8,500 for the survey. He was once general counsel for the U. S. Bureau of Public Roads.

New Twist in Parking Garages . . .



. . . Car Lift and Shaft Move

A multistory mechanical parking garage just built in Parkersburg, W. Va., makes use of a unique elevator system for fast storing of automobiles. As the cab carrying a car moves up and down, the elevator tower simultaneously moves horizontally, bringing the vehicle swiftly to a previously selected parking position.

Known as Park-A-Loft, the new parking facility was designed and built by the Dresser-Ideco Co., Columbus, Ohio. It has a capacity of 264 cars on seven levels, including ground floor and roof.

The 102x100 ft building has a structural steel frame. Floors above the first are heavy steel plate. The exterior is open, except for 4 ft high green-colored aluminum spandrels at each level. In the interior are two of the unusual elevator towers, serving three parking units. The lifts operate in long, narrow spaces between the units.

The two towers ride on rails at second-floor level. By moving cars horizontally and vertically simultaneously, they are expected to raise and park one car, then bring back another in 2 min 22 sec on the average.

Cars are picked up automatically at ground level or in a parking stall on a dolly, which rolls them in and out of the elevators and later deposits them at their destination. The operations are controlled by push button by an elevator attendant. Dollies, tower and elevators are electrohydraulically operated. Auxiliary power units, including gasoline-powered generators, are provided to keep the garage operating at all times.

Dollies have rubber lift pads that contact cars only at three points.

The garage was built for the Parkersburg Parking Commission. Jesse D. Folwell was the architect, and Plate Construction Co. was the general contractor—both of Parkersburg.

City Unveils $155 Million Water Construction Plan

Chicago has announced a waterworks construction program for 1958-1962 with a price tag of $155 million.

The five year improvement plan includes $80 million for filtration plant construction; $42 million for water main construction; $20 million worth for tunnels and shafts; and $13 million worth of improvements to 11 pumping stations.

The big new program is the result of a combined study by the city's Departments of Water & Sewers, Public Works, and Planning. Largest single item is $71 million to complete the 960 mgd Central District Filtration Plant (ENR June 27, 1957, p. 49).

Recently, A. L. Jackson Co., Chicago, received a $14.7 million contract to construct 16 settling basins at the $95 million plant. The award is the largest ever made by the City of Chicago.

About $40 million has already been spent on the new plant at Navy Pier, which will be the largest water treatment plant in the world.

State Would Create Body To Build Navigation Jobs

Development of navigable waterways in North Carolina would become the responsibility of an independent agency similar to the State Highway Commission under a plan now being studied. Strong support for the plan was voiced at a recent public hearing in Raleigh, conducted by the Commission of Reorganization of State Government.

Five state agencies now have a hand in navigation matters and none of them can build projects. Construction of projects, as in most other states, is dominated by federal agencies.

Col. Harry E. Brown, engineer in charge of North Carolina's exemplary hurricane rehabilitation program, said, "There is every reason to believe that a strong waterways commission could develop the waterways in the same manner our highways have been developed." But he also pointed out that the multimillion-dollar improvements needed can't be made without federal help.

Levitt Eyes Puerto Rico As Site for Levittown IV

William J. Levitt is considering a Levittown project in Puerto Rico. He has organized Projectos Borinquen, Inc., San Juan.

The firm will test market reaction and determine construction costs with an experimental project in Bayamon, near San Juan. President of the firm is Joseph Kelly, formerly a Boston contractor.

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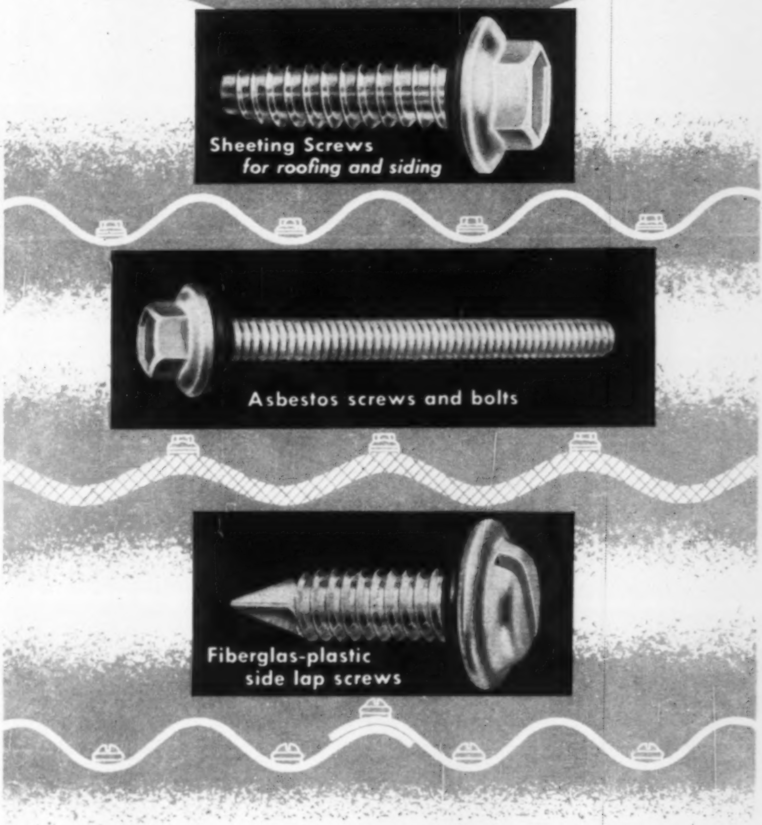

A Townsend Tuff Tite specifically designed to do the job is available for any sheeting application, including curtain wall construction. Structural and side lap sheeting screws are available in a variety of materials for either crown or valley fastening, and types are available for any type of sheeting. For asbestos sheeting, both structural and side lap fasteners can be furnished for either tapping screw or bolt and clip systems. Pilot point side lap fasteners provide strong and economical joints for plastic windows and skylights.

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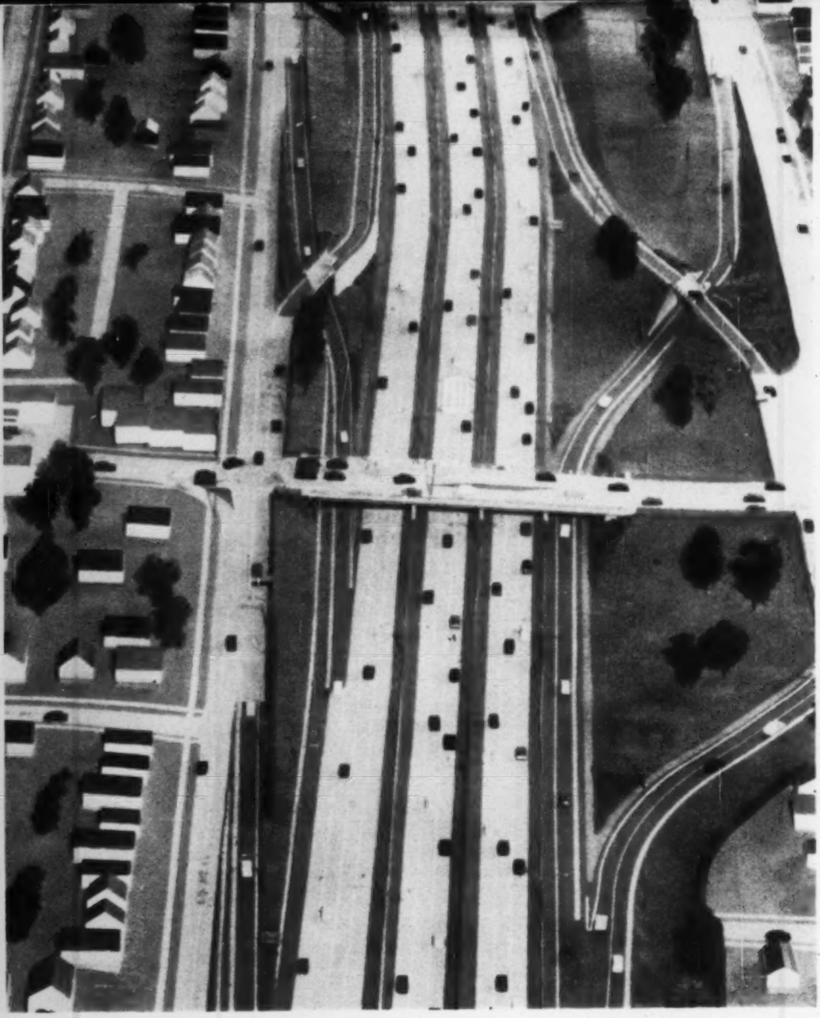


FREEWAY MODEL is used to show public what to expect and to help designers.

Here's How

Construction is just getting under way on a freeway through Seattle that will have three separate roadways. One of them will be reversible to handle peak hour traffic.

Three unique circumstances led to this design:

1) Seattle narrows down at the main business district to a 2 mi strip pinched between Lake Washington on the east and Puget Sound on the west. This leaves little room for freeways and makes construction of parallel freeways prohibitive.

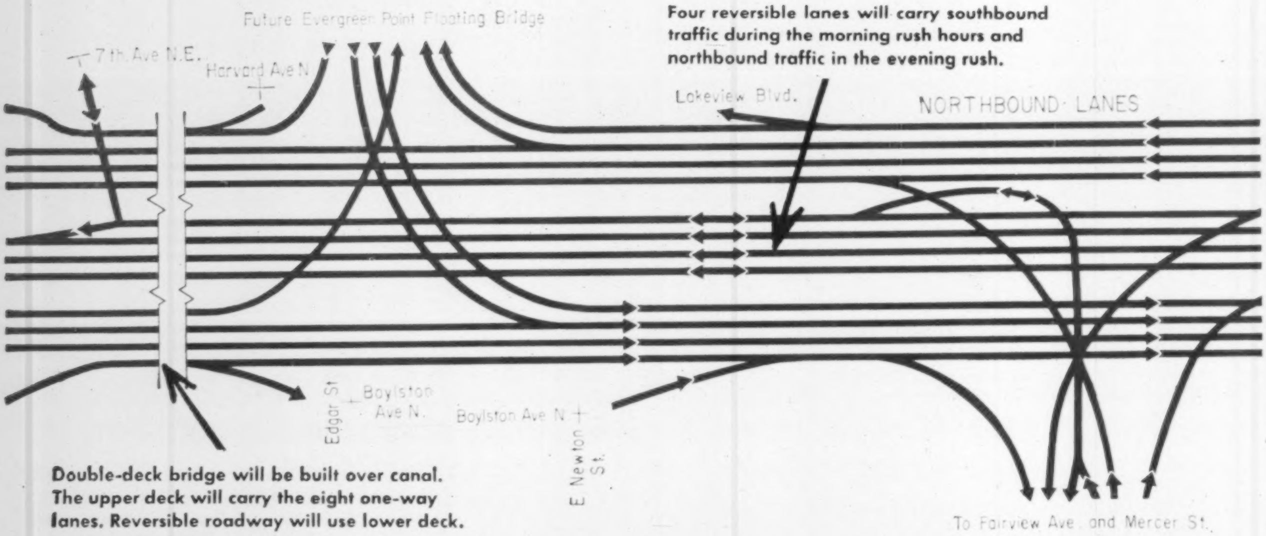
2) During peak periods, up to 85% of the traffic is going in one direction. That's because most of Seattle's industry is south of the downtown area, and many residences are north.

3) In 1975 (the design year) traffic volume is expected to reach 160,000 vehicles a day, with 17,000 in the peak hour. Twelve lanes are needed to handle this volume, with eight lanes in one direction.

With these conditions in mind, engineers for the Washington State Highway Department studied the possibility of reversible lanes. Then they came up with the idea of a completely separate roadway for the reversible traffic flow.

The freeway will have three separate four-lane roadways at its maximum section. Traffic on the reversible lane will run south in the morning and north in the evening. The other two will be one-way.

Here's how Seattle's freeway will work . . .



Four reversible lanes will carry southbound traffic during the morning rush hours and northbound traffic in the evening rush.

Double-deck bridge will be built over canal. The upper deck will carry the eight one-way lanes. Reversible roadway will use lower deck.

to Handle Rush-Hour Traffic

Washington officials believe the freeway's 12 lanes will be the greatest number of lanes of any one facility in the United States. Even so, four lanes is the maximum in any single unit of the Seattle Freeway. More are considered dangerous. It is certain this will be the first time four reversible lanes have been attempted.

The reversible roadway extends north for 7 mi, starting just south of the central business district (see map). This compares with the 20 mi length of the entire freeway, from the south city limits to the Snohomish County line on the north. There are no direct connections between the regular freeway lanes and the reversible lanes, except at the ends. Separate ramps are provided at various points along the reversible roadway.

The 160,000 vpd estimated traffic on the freeway takes into account assignment of as much traffic as possible to other thoroughfares. This includes the Alaskan Way Viaduct, which bypasses the main business district on the west. And it contemplates future improvement of Empire Way on the east, bringing it to expressway standards, and in some sections to freeway standards.

• **First target: 1962**—Cost of the Seattle Freeway, which is on the interstate system, is estimated at $175 million. Construction schedules are aimed at placing the first part of it in service by 1962. By means of accelerated financing, Washington highway officials hope to have the entire program completed by 1966.

The accelerated financing takes the form of a $75 million bond issue, which the state legislature has authorized to speed work on the interstate system between Tacoma and Everett. The bond funds will be paid as federal interstate allocations become available. Bond financing will be concentrated on the Seattle Freeway because it's probably the most essential part of the Tacoma to Everett route.

At one time, the Tacoma to Everett freeway work was authorized for construction as a toll road. Engineering studies were completed in 1954. Final legislation was being pushed through the Washington legislature when the Federal Interstate Highway Act of 1956 was passed. Construction will take longer under the federal program—even with accelerated bond financing. But Washington officials were convinced it would be prudent to build as part of the interstate system rather than as a toll road.

Alignment of the Seattle Freeway was developed by state and city engineers. And the toll road studies refined the route substantially. Even so, a lot of additional engineering has been necessary. For example, the toll road program was aimed at satisfying the needs of 1965 traffic; the maximum section originally proposed was only ten lanes.

The toll road studies contemplated use of some reversible lanes. They were to be connected to one-way lanes by weaving-type lanes. But with heavier traffic expected in 1975, more reversible lanes became necessary. With the extra lanes, the weaving connections looked too risky. So a new plan was developed.

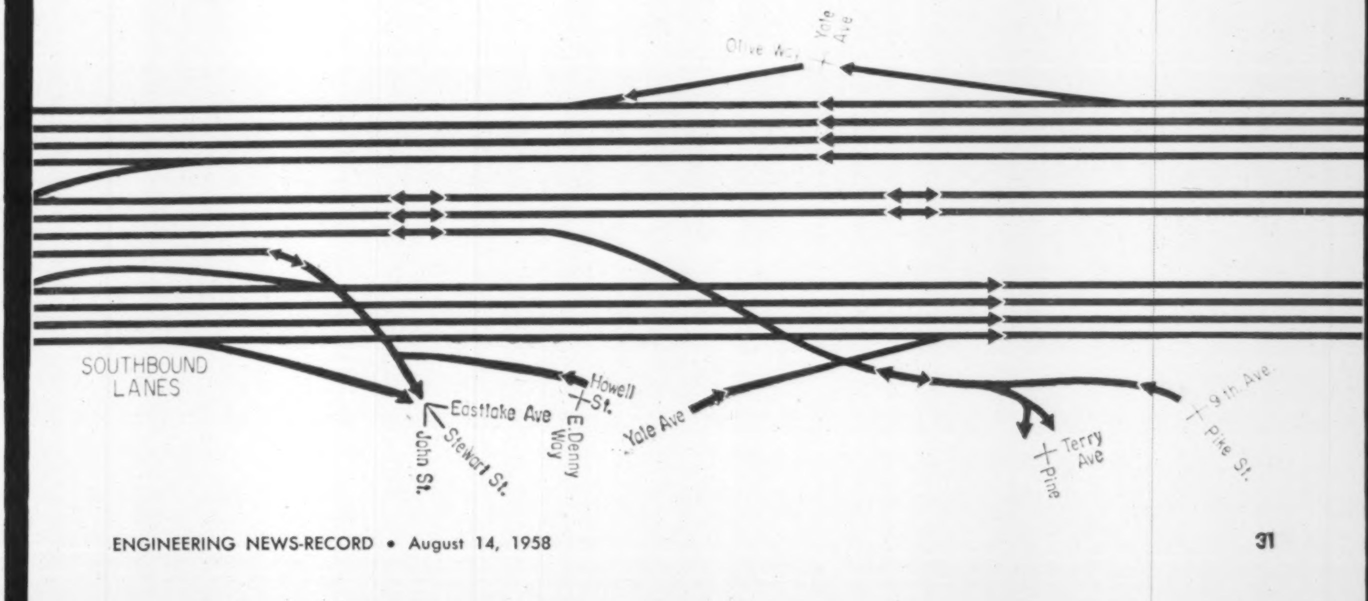
• **How it works**—The reversible roadway will be completely separated from the regular freeway. On a high level bridge across the Lake Washington Ship Canal, the eight lanes of regular freeway are on the upper deck, while the four-lane reversible roadway is on a lower deck. The same arrangement is used at some other locations: the reversible lanes are placed on the lower viaduct to save right-of-way width.

Where the three roadways are on the same level, they will be separated by 22 ft medians, including positive barriers, and 10 ft wide shoulders. On structures more than 150 ft long, 6 ft wide shoulders will be provided on both sides of the traffic lanes.

In effect, the reversible section is a separate freeway with its own connections. The entire program might be considered two highways superimposed on one right-of-way. This construction is much cheaper and more feasible than building a separate freeway.

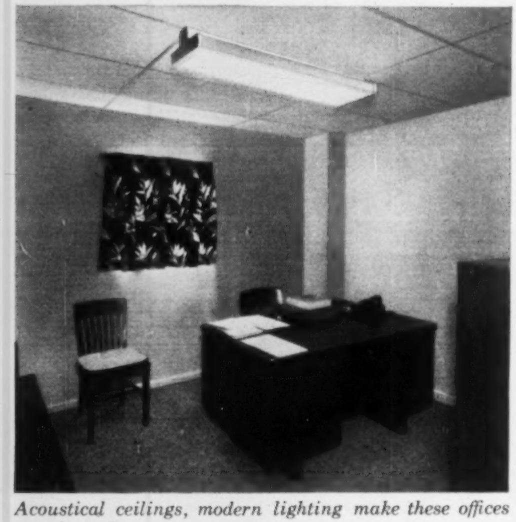
Details of operating time and methods of controlling the reversible section have not been fully worked out.

(*Story continued page 33*)



Brick exterior was easily applied to office section. Stran-Satin panels add to trim appearance.

In Dallas— STRAN-STEEL OFFICE-WAREHOUSE... A BLUE-CHIP INVESTMENT



Acoustical ceilings, modern lighting make these offices easy to rent.

Look what imagination and sound Stran-Steel engineering can do! This attractive Rigid Frame building was built specifically as rental property. Tenants occupy the 10 offices in the 40′ x 60′ front section. The 40′ x 100′ column-free structure back of the offices is rented for warehouse use.

Brick exterior of the office portion is applied to steel walls. Steel portion of warehouse is *Stran-Satin* for added attractiveness. Interior office is finished with sheet rock nailed directly to nailable Stran-Steel studs. Acoustical tile and fiberglas insulation were also used to make the building more firesafe.

The column-free warehouse is equipped with a monorail, three 14′ x 12′ sliding doors and Stran-Lite translucent skylights. Unobstructed floor space totals 6,400 square feet.

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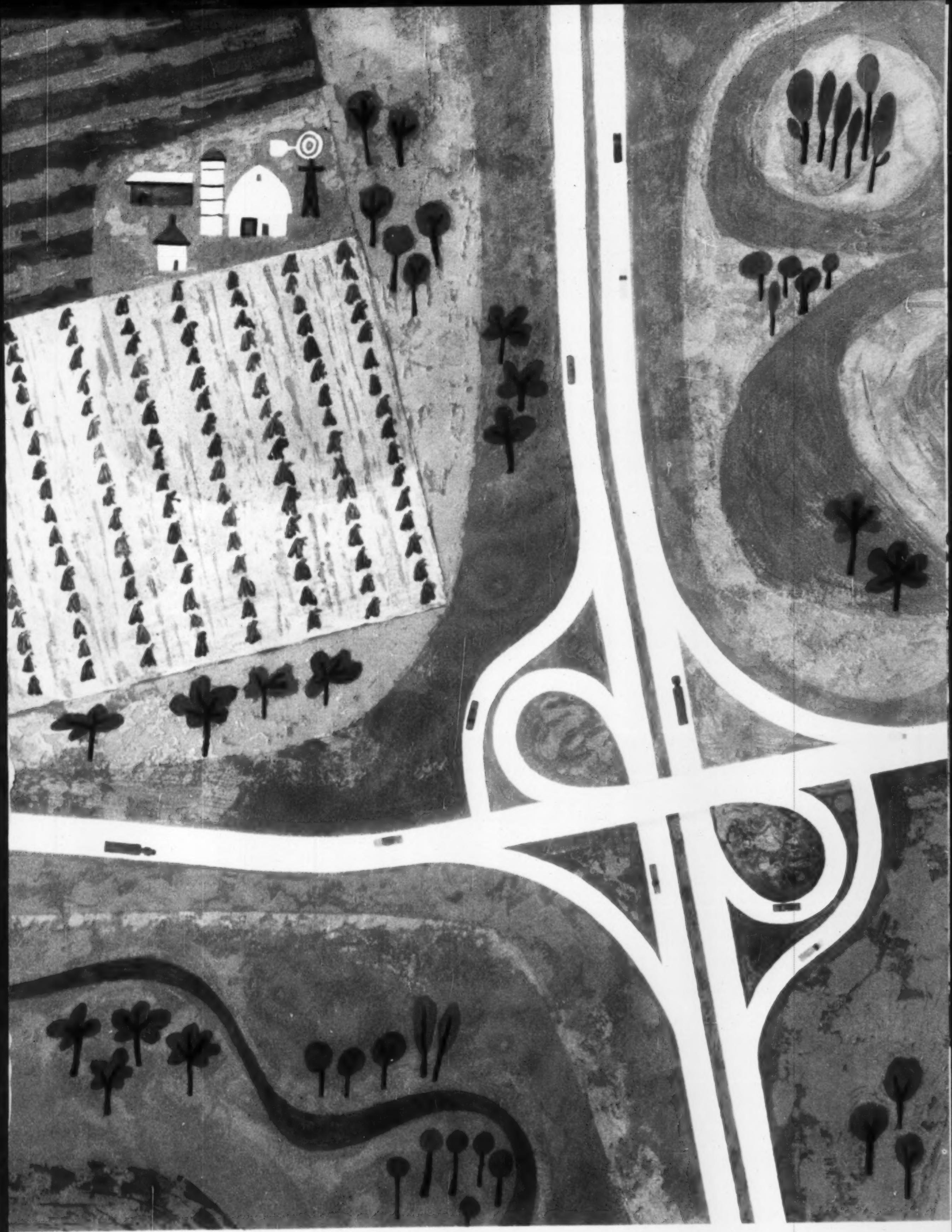
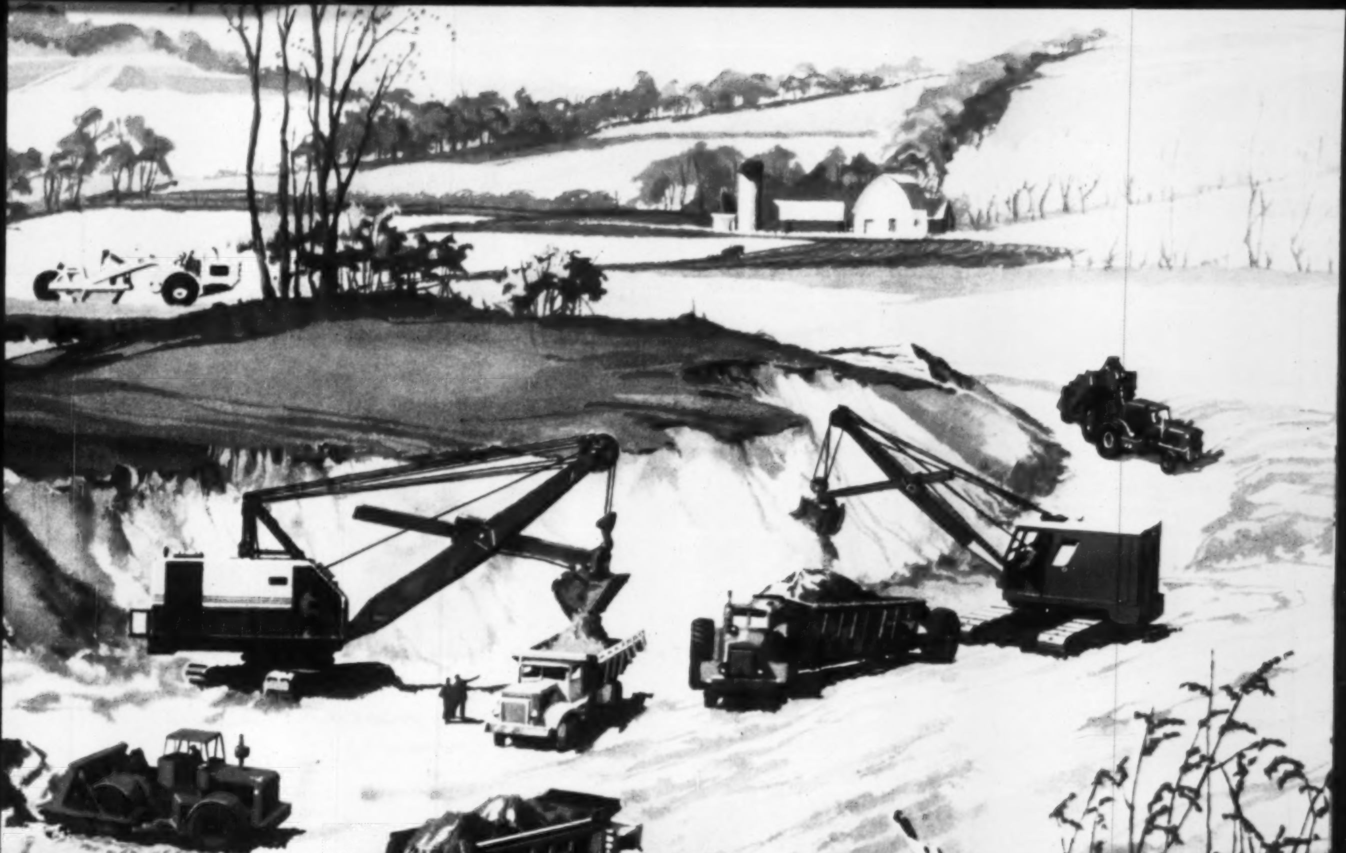


INTERCHANGE USA →

Interchange USA *Rough clearing*

Specify Cummins for dependability



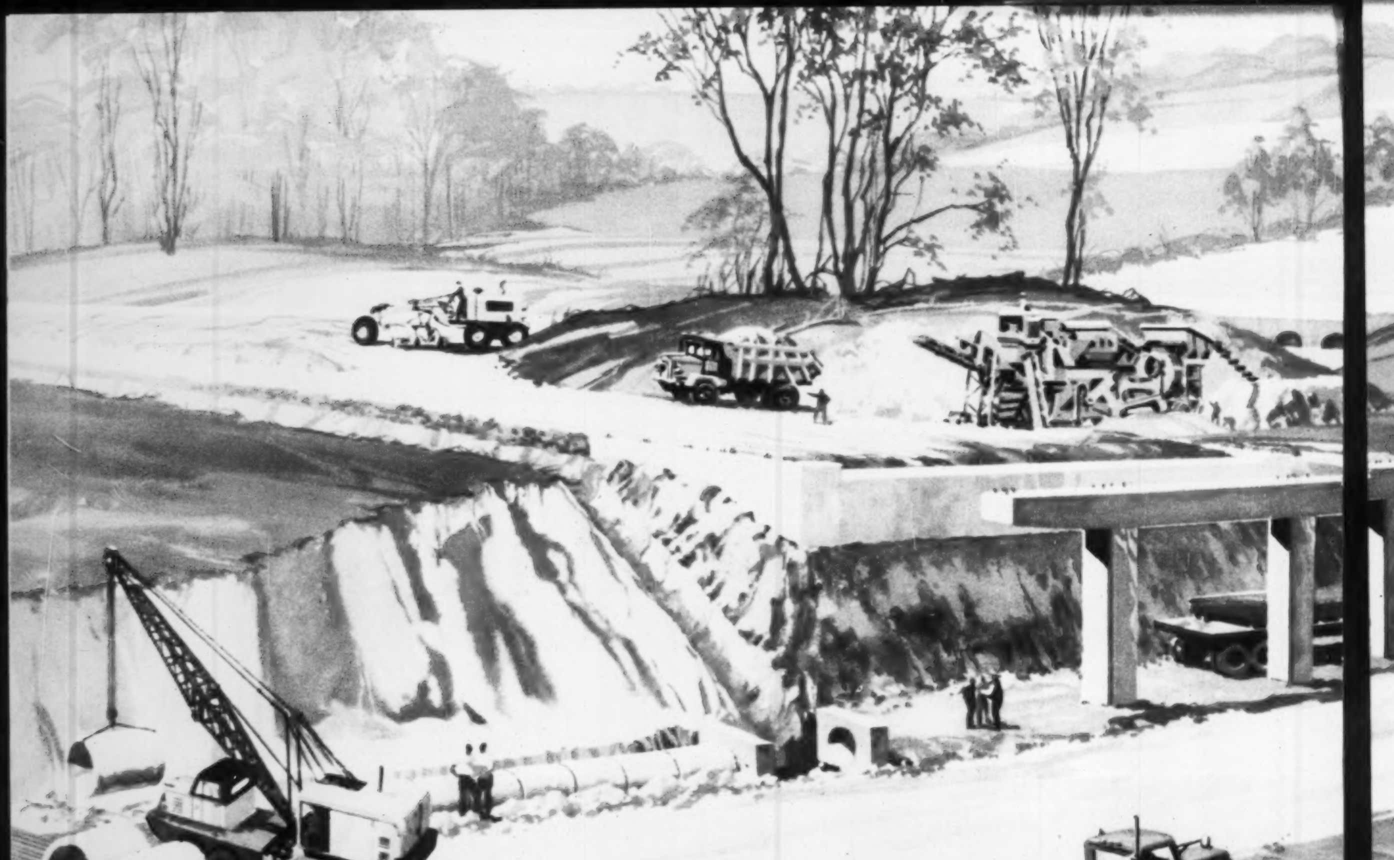
Highway design was revolutionized when the first "cloverleaf" interchange went into operation in 1928 at Woodbridge, New Jersey. Since then, the interchange has become such an indispensable part of our highway system that nearly 9000 rural interchanges alone are planned in our new Federal Highway Program.

Cummins Diesels were first applied to motor trucks and other haulage equipment for roadbuilding over 25 years ago, and their efficiency and long life have since made them one of the most dependable power sources for the construction industry.

Today, Cummins power can be specified in more than 300 models of all types of construction equipment. The machines shown above and on the following pages are Cummins powered.

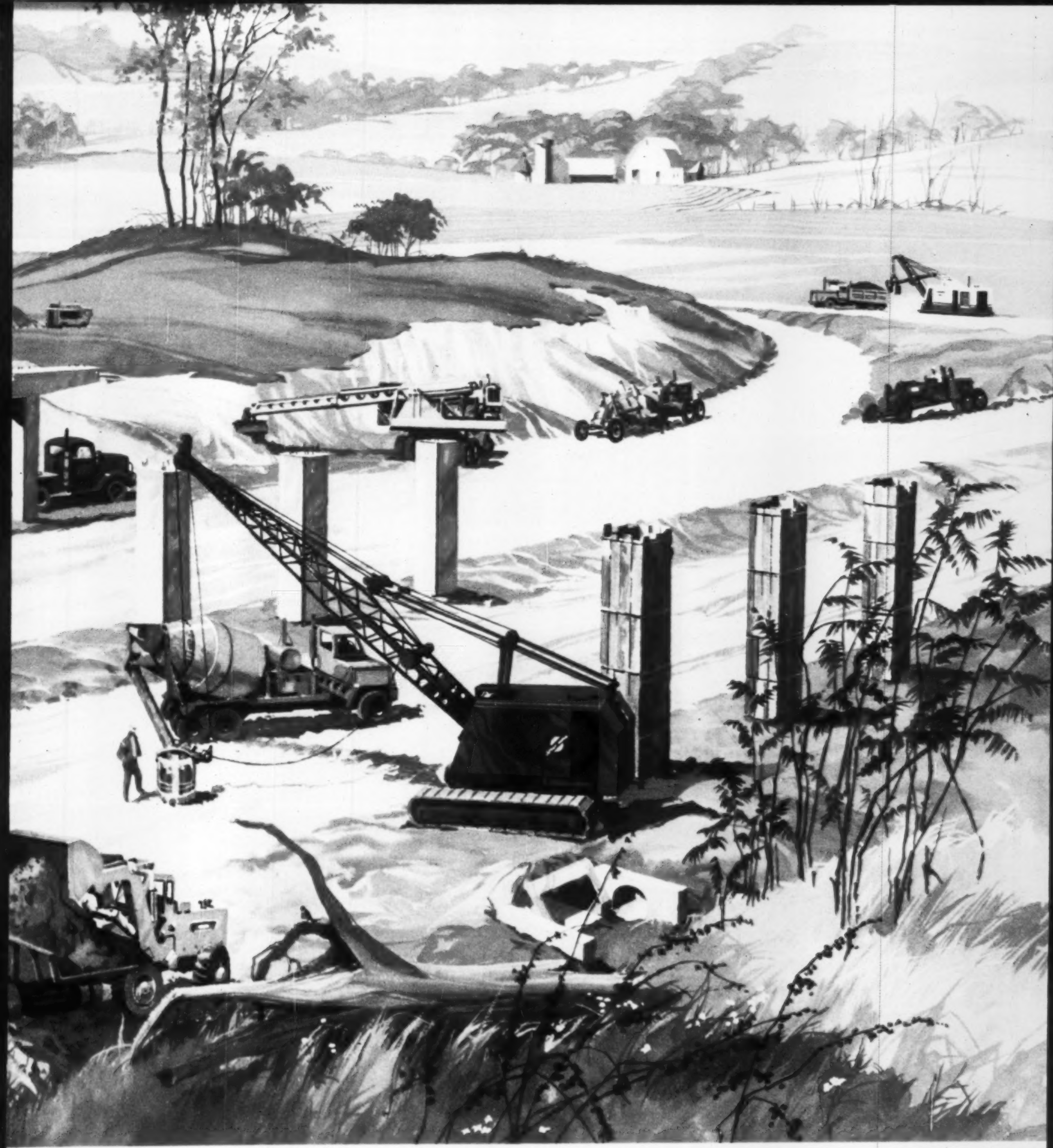
CUMMINS *powered equipment in action:*

(Clockwise from top left) Pacific end dump • Diamond T trailer dump • Insley backhoe • Wooldridge scraper • M-R-S scraper • Bay City shovel • Euclid bottom dump • Eimco crawler tractor • Kenworth (Canadian Kenworth) end dump • Bucyrus-Erie shovel • International "Payhauler" • "Scoopmobile" dozer • Mack end dump • Brockway flat bed truck with Reich drill • Worthington compressor • Lima shovel and Le Tourneau-Westinghouse dozer.



Interchange USA *Final base work*

Specify Cummins for fuel economy



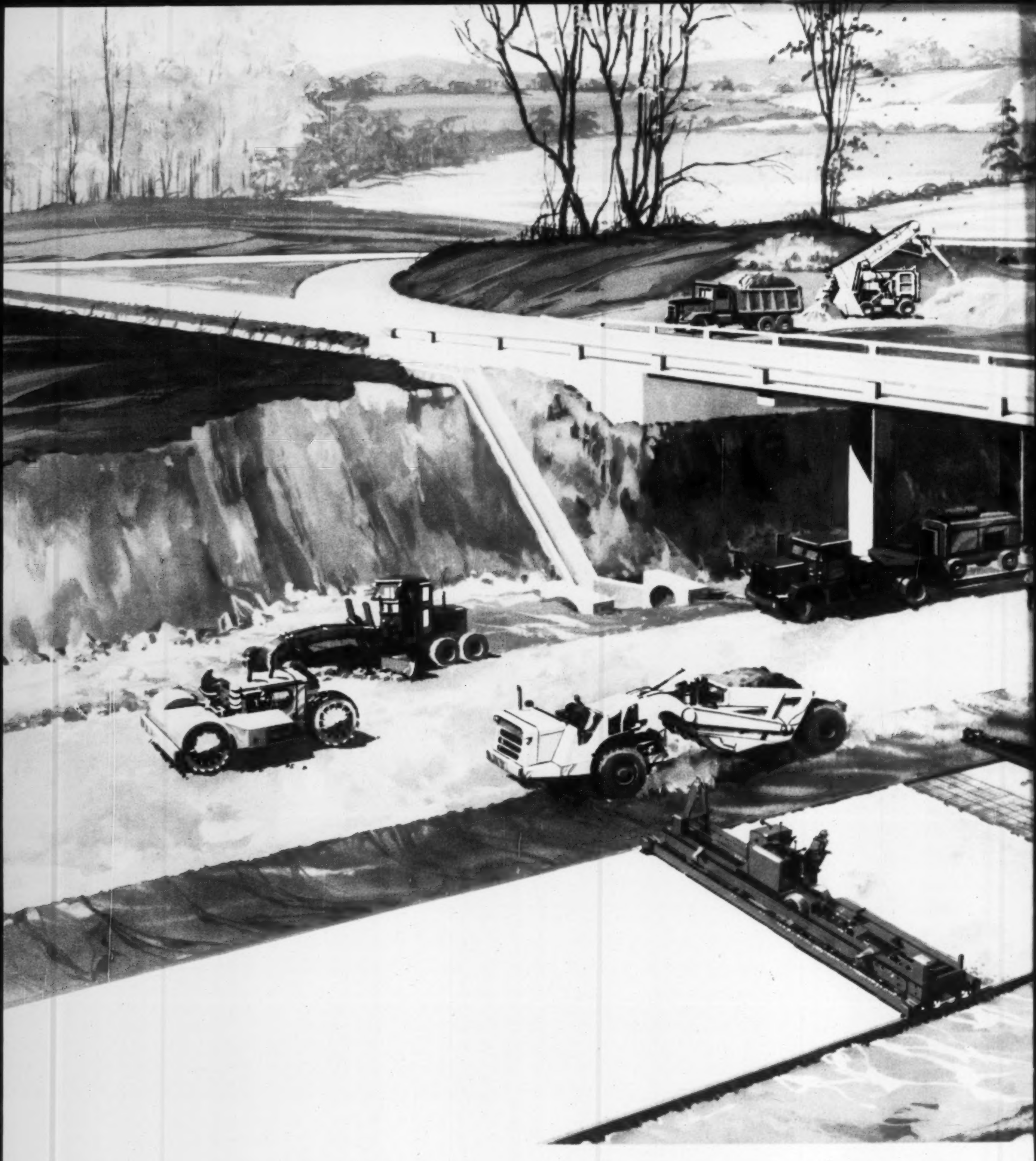
CUMMINS *powered equipment in action:*

An interchange is custom designed to suit local traffic conditions. Costs may run from $120,000 to upwards of $10 million—exclusive of highway. Modern machines and methods permit year 'round construction in nearly every area.

By standardizing on Cummins, contractors can reduce road-building costs. Cummins Diesels offer proven fuel economy—*saving as much as 50¢ per operating hour over competitive diesels!*

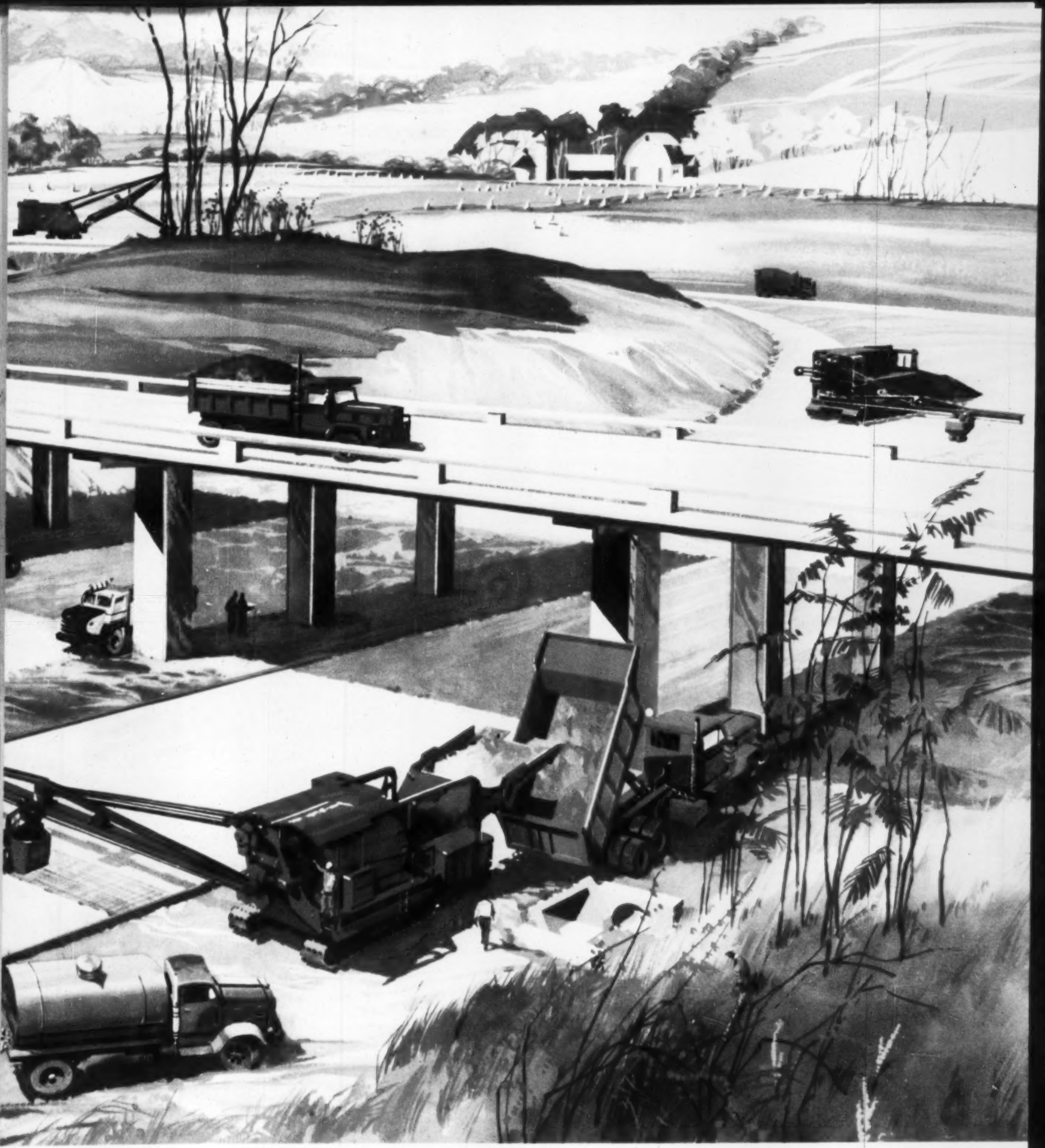
Another feature that influences the over-all economy and long life of a Cummins Diesel is its dirt-proofing system. Air cleaners, caps, connections and oil system provide the most efficient protection against the effects of dirt on today's high horsepower engines.

(Clockwise from top left) Adams grader • KW-Dart end dump • Iowa-Cedarapids rock crusher • Joy compressor • Cline dump • Marion shovel • Galion grader • Huber-Warco grader • Gradall (Duplex Div. • Warner Swasey Co.) • Manitowoc crane • Cook Bros. redi-mix • International (Emeryville) tractor • Hough front end loader • Oshkosh end dump • White tractor with American hoist on lowboy • Wagner dozer • Autocar tractor and lowboy and Thew Moto-Crane.



Interchange USA *Paving and Finishing*

Specify Cummins for more profit



By 1969, nearly 41,000 miles of limited access highways will be constructed at a projected cost of 39.5 billion dollars. Interchange costs may approach or exceed 25% of the total cost of the program.

Because of its potential volume and compact design, the interchange has become a sought-after project—one where standardization is desirable. To assist contractors in standardizing, more than 100 additional models have been added to the growing list of Cummins powered equipment in the last 2 years.

Today, more manufacturers utilize Cummins engines than any other independent make of diesel, ranging from the 75 h.p. J-4 (used in road rollers and shovels) to the 600 h.p. VT-12 (used in dump trucks, shovels, tractor-shovels, dozers and scrapers).

CUMMINS *powered equipment in action:*

(Clockwise from top left) Hayes dump • Pettibone-Haiss bucket loader • Link Belt shovel • Crane Carrier redi-mix • Worthington paver • Peterbilt dump • Koehring paver • Four Wheel Driver water wagon • International dump (on bridge) • Walter truck (under bridge) Hendrickson tractor with Cummins powered generator on lowboy • Cummins powered finisher • Michigan scraper • Austin Western grader and Buffalo-Springfield compactor.

INTERCHANGE USA

In thirty years of development, the interchange has become indispensable to the modern highway system as a proven means of providing safe and fluid traffic flow. The diesel engine has become the accepted power for the equipment that builds these interchanges and roads.
In roadbuilding, for more profit, specify and standardize on Cummins Diesels in your new equipment. Specify Cummins when repowering too.

Specify Cummins when repowering

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- **Cummins Dirt Proofing System.** The positive dirt protection designed for new Cummins Diesels can be specified on Cummins power installed in your used equipment.
- **Cummins Long Engine Life.** Longer engine life with lower operating costs is a proven result of Cummins engineering research and full field testing.
- **Cummins Service.** Here is the most unique distribution organization in the country today. More than 300 service points are available throughout the United States and Canada. Call them for a repowering recommendation now.

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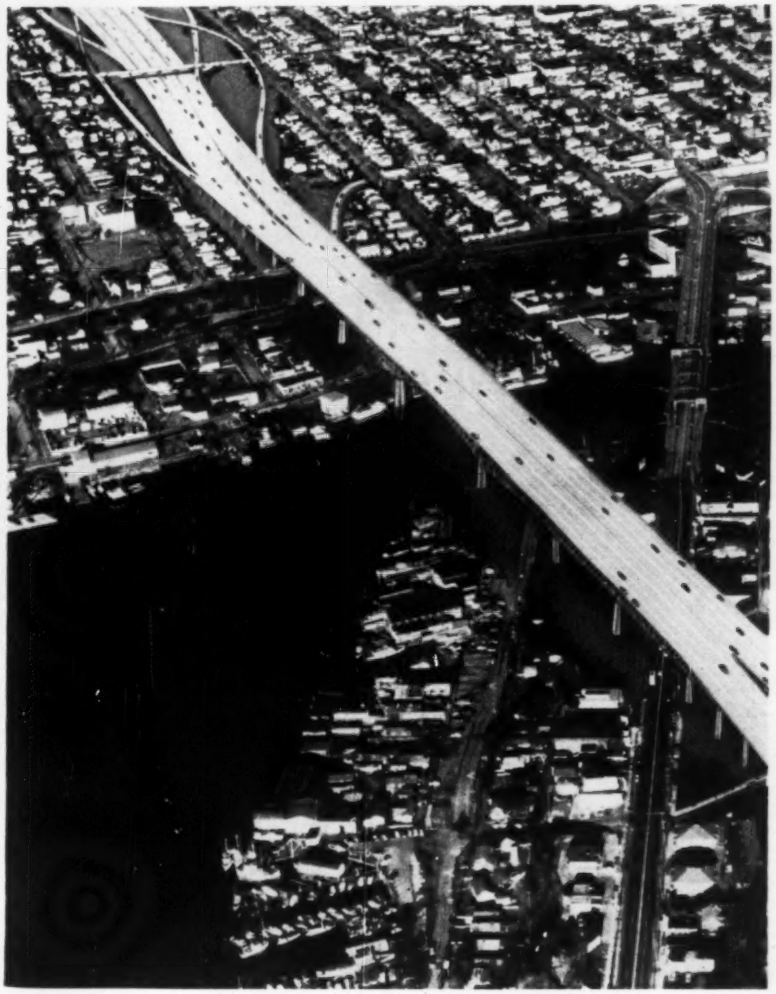
Litho in U.S.A.

. . . Right-of-way cost alone is $47 million



HIGH LEVEL STEEL BRIDGE is major structure on Seattle Freeway. It will carry eight lanes on its top deck, with four reversible lanes on a lower deck.

In any event, the roadway will be operated southbound during the morning rush hours, and northbound in the evening.

Present thinking calls for remote control barriers to close off the roadway when not in use. Manual operation of these barriers will be possible in emergencies.

The barriers will be supplemented by an extensive system of signs and traffic lights. It probably will be necessary to patrol the reversible section before reversing traffic flow to make sure all disabled vehicles are removed.

The reversible roadway is not a full four lanes for its entire 7 mi length. Starting at the south of James St, it is only two lanes, with direct connections to the regular freeway. It becomes four lanes about three-fourths of a mile from its southern end. The maximum section extends 3 mi to just north of the Lake Washington ship canal, where one lane is dropped off at 42nd St., which connects with the university section of Seattle. Three lanes continue for a mile and a half, until one lane is dropped off at 74th St., which connects with Bothwell Way. Two lanes continue for another 2 mi until the freeway reaches 103rd St.

The reversible roadway does not have as many connections as the regular freeway. There are seven in its 7 mi plus end connections with the regular freeway. Most of the connections for the reversible roadway are at different locations than the regular freeway connections. This will spread the load on city streets.

Some of the connections end in a couplet with a one-way street system. Control is expected to be fairly easy with one leg of the couplet blocked off in the morning and the other couplet blocked off in the evening.

It's more difficult to connect with a two-way road. Here it's expected that the ramp to reversible lanes will connect in the center of the local road.

• **Bridge first**—First phase of the construction program will be the 4,400 ft long high level bridge across the Lake Washington Ship Canal. This complicated structure will take about 2½ years to complete. First bids for piers and footings were opened August 5. The apparent low bidder, among 14, was Schuemann & Johnson, of Seattle, with a bid of $964,291. Second low bidder was over $1 million.

The bridge will cost about $16 million. It will be a deck-type, cantilever bridge with 552 ft main span and 345 ft anchor spans. There will also be three truss type approach spans of 345 ft. Vertical clearance over the ship canal will be 135 ft.

Next construction bids will be opened late this year for the steel superstructure and approaches to the bridge.

With the bridge under construction, emphasis will be placed on the part of the freeway extending from the north edge of the business district north to 75th St. This should be in service by 1962. Next phase will be the section that runs through the business district. The north and south ends of the freeway will follow.

• **Key figures**—Estimated cost of right-of-way alone is $47 million. That includes more than 3,000 pieces of property totalling 800 acres. The program will include 75 structures totalling about $68 million. The rest of the $175 million cost is devoted to grading and paving. That will involve 12,000,000 cu yd of excavation with some 4,000,000 cu yd of this to be wasted. And it will include 1,000,000 sq yd of paving.

Right-of-way acquisitions started last fall, with $4.5 million spent in the first 6 months of operations.

Design and construction of the freeway was assigned to a District No. 7 of the Washington State Highway Department, which was created solely for this purpose. It is directed by Walter E. McKibben, who was formerly district engineer at Wenatchee. This district will eventually assume responsibility for maintenance of the freeway and may be assigned other urban freeways to plan, construct and maintain sometime in the future.

• **Promoting the job**—About a year ago District No. 7 started publication of a four-page leaflet, called "Seattle Freeway News." Purpose is to keep interested people informed on freeway progress. Four issues have been pub-

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The exclusive manual clutch control is one of the big reasons why more contractors specify Stow Roto-Trowels. Merely by letting go of Stow's Dead-Man Clutch Control the operator stops the blades WITHOUT stopping the engine. Recent tests prove that the blades come to a complete stop *one-sixth of a second* after the operator releases the handle.

With this important safety feature the operator can keep the engine of the Roto-Trowel running while he lets go of the machine to pick up a pebble from the concrete or light a cigarette.

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Stow Roto-Trowels also feature blade pitch control on the handle, adjustable handle for height, chrome-vanadium steel blades and lifting hook on the engine. Available in 24", 29", 34", 42" and 46" trowel diameters, with a range of eight models to choose from, Stow Roto-Trowels are built for safety and long life, built to produce excellent concrete finishes.

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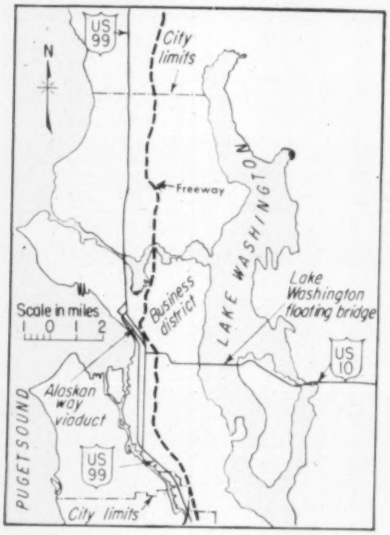
. . . Seattle freeway



FREEWAY CONNECTS industrial area south of main business district with residential section to the north.

lished and mailed to occupants of all property in the freeway path, and those immediately adjacent to the freeway. The brochures also are supplied to news publications and service clubs in the Seattle area. The publication has performed a valuable function in relieving highway engineers of many questions that might otherwise be asked of them.

Another public relations tool being used by the district is a scale model of the freeway. The model is constructed in 7½ ft lengths and is mounted on folding legs so that it can be moved readily. Scale is 1 in. equals 30 ft.

The model is used to show the public what to expect and also to help the designers. The engineers have easily saved the cost of the model in design changes that might not have become evident until actual construction.

Florida Scientists May Use Limonite for Shields

Florida State University scientists at Tallahassee have indicated that they may use limonite as a shielding material to be built into the concrete housing for the university's atomic accelerators.

Prof. B. F. Buie, head of the department of geology, who conducted the search for a suitable shielding material that would be available cheaply and in quantity, found that limonite absorbs neutrons and gamma rays well.

Limonite ore, an iron oxide, is mined at Lumpkin, Ga., only about 100 miles from Tallahassee. The structure, with its thick shielding walls, must be in condition to receive the smaller of two accelerators by fall.

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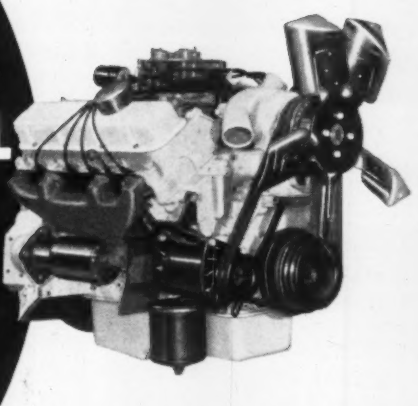

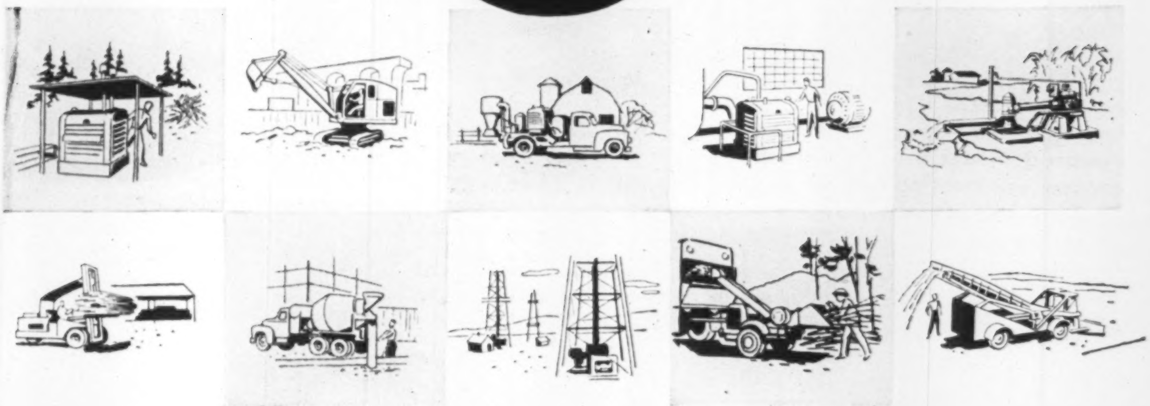

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These are typical of the many engineering advances you'll find in all Ford Industrial Engines. If you're considering new power or repowering, it'll pay you to check Ford's full line of 4-, 6- and V-8 cylinder engines . . . including the Ford 220-cu. in. and 330-cu. in. Diesels. Most models are available as engine assemblies or power units, foot- or skid-mounted.

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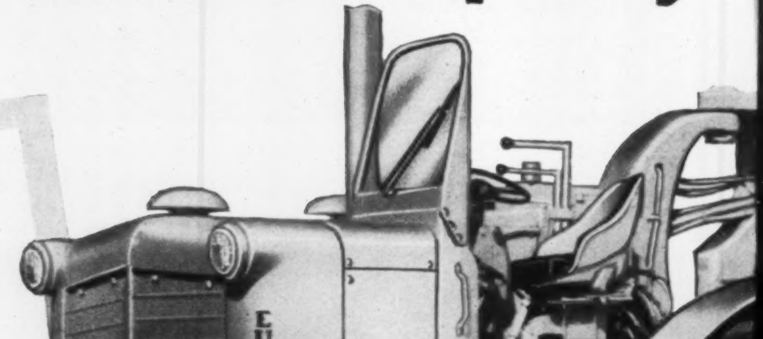
STILL MORE PRODUCTIVE CAPACITY WITH THE NEW S-18

- Up to 30 yds. heaped
- 325 h.p.
- Torqmatic Drive with lock-up
- Filtered hydraulic system



3 more yards . . . 25 more h.p.!

With struck capacity increased from 18 to 21 cu. yds., the improved Model S-18 Euclid Scraper now provides even more low-cost earthmoving ability. Payload capacity is 24 cu. yds. at 3:1 slope and 30 yds. at 1:1.

The 325 h.p. diesel, 4-speed Torqmatic Drive and Euclid planetary drive axle enable the S-18 to move big yardage at low cost. Converter lock-up in the Torqmatic assures maximum efficiency on grades and long, high speed hauls.

Quickly responsive, full hydraulic steering and the large rolling radius of 27.00 x 33 tires help make the S-18 a highly maneuverable machine, despite its big capacity. Non-stop 180° turns are made in 36 ft. 4 in.

Hydraulic lever action, with only one short cable for the apron lift, provides fast, easy control of all scraper actions and eliminates downtime and expense from cable breakage. Model S-18 incorporates Euclid's original low bowl design with the structural strength needed for working with the biggest pusher tractors. The 4-section cutting blade is adjustable and reversible for efficient loading in any scraper material and longer blade life.

See your Euclid dealer for facts and figures on the improved S-18 with 21 yd. struck capacity . . . he'll be glad to explain the many new production advantages and show you why *Euclids are your best investment.*

EUCLID Division of General Motors, Cleveland 17, Ohio

Hydraulic lever action provides fast, independent control of all scraper operations . . . eliminates downtime and expense due to cable breakage. High apron lift and roll-out ejector shed the load fast and clean. Independent control of bowl, apron and ejector permits controlled spreading of the load.

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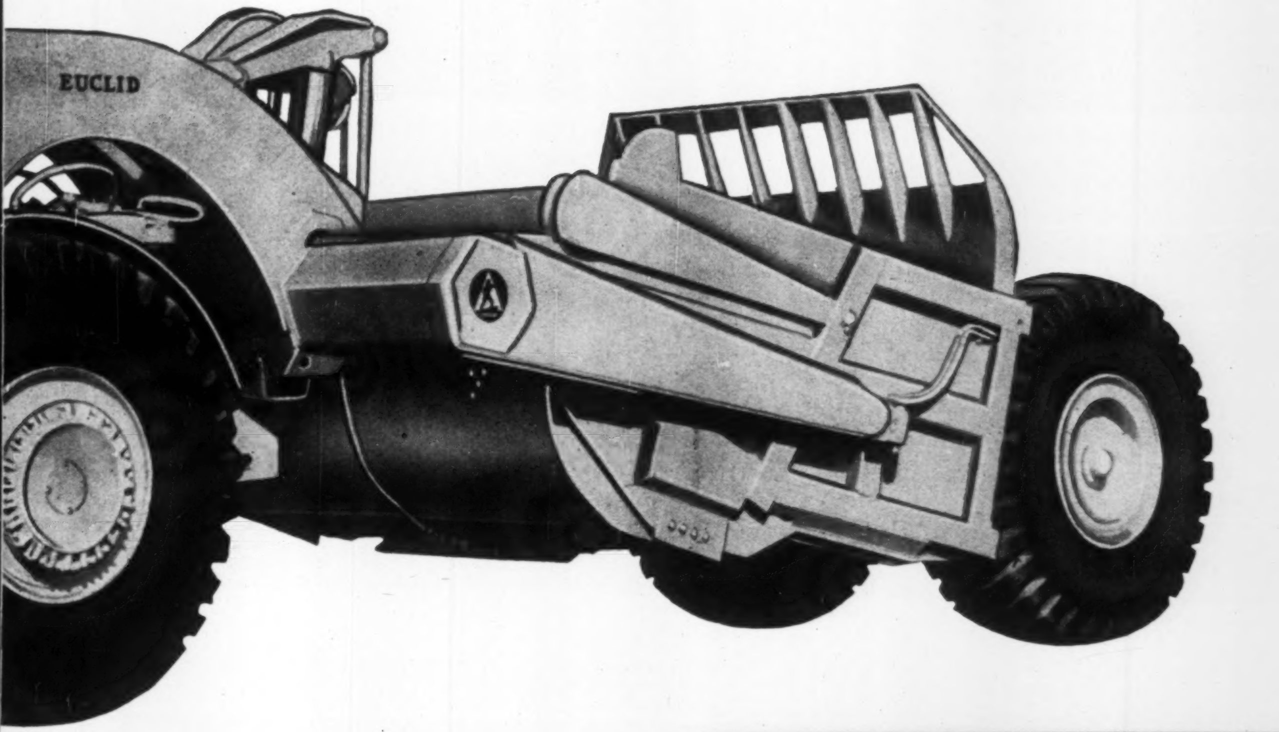
FOR MOVING EARTH, ROCK, COAL AND ORE

in "EUC" S-18 Scraper

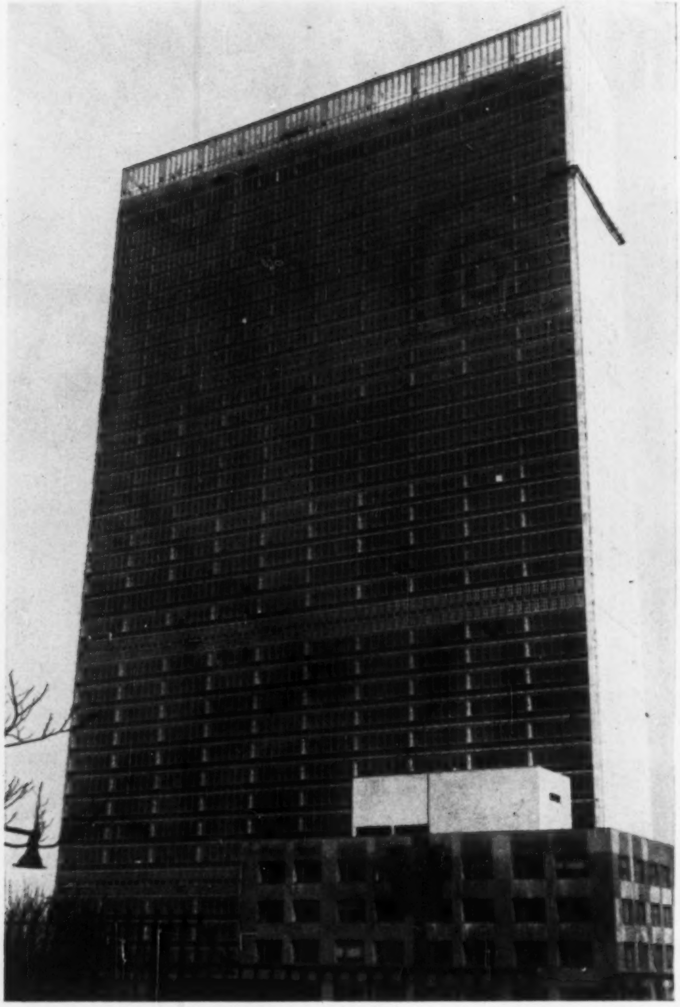


Torqmatic Drive pays off in faster cycle time and more production. There's no clutching or loss of momentum when changing to any of the 4 forward speeds. Converter lock-up makes efficient use of engine power on grades and long hauls by providing direct drive.

Four identical and reversible blade sections assure long blade life in any material. Sections can be adjusted to provide the most efficient drop-center arrangement for loading a variety of materials from loose sand to heavy clay, shale and ripped rock.

Low, wide bowl—a feature of Euclid scrapers for years—enables the S-18 to carry more pounds of payload. It has the structural strength needed for push loading by the largest, most powerful tractors such as the Euclid TC-12 Twin Crawler.

- **Why do some thin curtain walls leak?**
- **Do glass walls transmit excessive heat?**
- **What can you do about "tin-canning?"**



U. N. Secretariat building, New York City, needed extensive repairs after water came in through wall joints and windows.

What You Should Know About

Marianne Stern
Assistant Editor
Engineering News-Record

The thin curtain wall—building's newest and biggest baby—can be a problem child at times. While most such exterior walls are trouble-free, defects in some metal and glass facades are forcing a concerned industry to take a new look at design and construction practices.

The new facings are thin—as little as 1¼ in. thick, including insulation. Sometimes they are of sandwich construction, and they may or may not have a backup wall. They are usually brought to the site as large panels—in some cases as high as two stories—with window frames incorporated.

Since the first postwar metal and glass facade was put up 12 years ago, the many advantages of its novel construction—lightweight, speed of erection, durability, low maintenance costs, color, sculptured patterns and more rentable floor area—have sparked the enthusiasm of architects, builders and public. More and more of them are reshaping city skylines.

But this new method of building has developed so rapidly that confusion and mistakes have sometimes come with design and erection. Almost every thin-wall structure is a new model, and criteria to guide designers and builders are scant; conventional building techniques have not always proved suitable.

As a result, the metal and glass sometimes have failed to knit into a weather-tight unit. Tenants complain of leaky windows, intensive heat, condensation on the interior walls, broken glass and drafts; panels may warp and walls go out of plumb.

To find out what causes such defects, what has been done to correct them and how similar flaws can be avoided, ENR queried architects, building owners and builders. Here are the findings.

1. Leaks: Causes, Cures

• **Windows and joints**—Leakage is the most frequent weakness of thin curtain walls—and it has many causes. Among them are failure to provide ample building tolerances and use of improper building materials. Most frequently, leakage occurs in buildings where inade-

Standard Federal Savings building, Los Angeles, was plagued by intense heat trapped inside the building.

Lever House, New York City, leaked around windows when the glazing compound dried and fell out.

Thin-Wall Buildings

quate calking or glazing compounds were used and where insufficient provision was made for expansion and contraction of the facade.

Temperature changes cause severe movement of metal and glass panels, and driving rain scours the joints. As the wall moves, conventional calking is subject to great stress; it dries, cracks and eventually falls away.

Lever House, a 24 story stainless steel and glass skyscraper in New York City, began to leak shortly after its completion in 1952. Window glass is reported to have been set improperly, and in a compound that rapidly hardened so that little room was left for the glass to expand. Heat transmitted by the heat-absorbing glass also helped dry out the calking compound. Windows worked loose, rattled, in some instances cracked, and seepage developed. It became necessary to repoint the entire facade.

To replace the old calking, a liquid polymer compound was selected, because of its durability and elasticity. Waterproofing contractors removed the original glazing compound, which had completely disintegrated, and recalked all panels, inside and outside. After a year of work, Lever House was free of leaks.

Similar calking corrections have been made since on several other thin-wall commercial buildings.

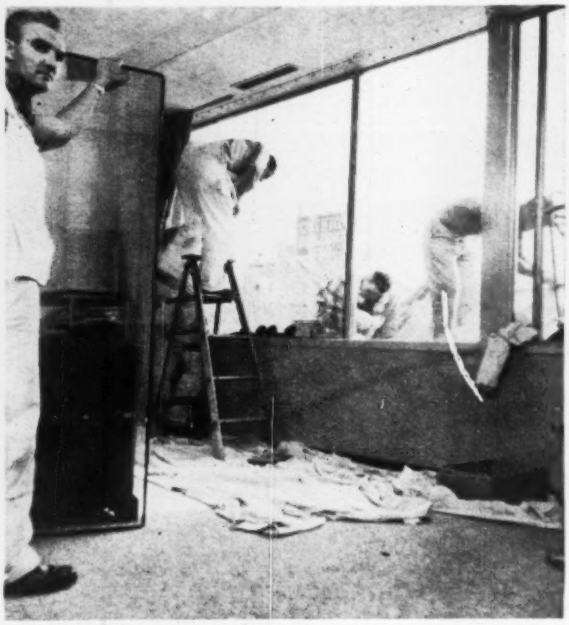
A different means of doing away with window leaks was devised for the General Motors Technical Center, Warren, Mich. A neoprene compression seal (an adaptation of the automotive windshield gasket) was fitted snugly around all four edges of the glass panes.

• **Overhaul needed**—An overall patchup job was needed on the U. N. Secretariat Building in New York City. This building was constructed in 1949, early in the thin-wall era. Little was known then about the effects of wind and water on metal and glass facades. Because the design did not fully anticipate the effects of wind-driven rain (the building stands exposed near a river), construction tolerances and building movement, water leaked through windows, vertical and horizontal wall joints.

Also, during erection, some of the stainless steel weatherstripping around windows was bent, and dirt particles lodged in the corners—another cause of leakage.

To correct the difficulties, corners of the mullions were covered with aluminum angles all the way up the building. Metal angles, 1 by 1 by ⅛ in., buttered

Compression seal, fitted around all four corners of a window frame, is one way to prevent leaks.



Glass panels, with steel screens incorporated, replaces original glass, which couldn't keep out heat.

with calking compound, were screwed in place over both butt and calked joints: Horizontal joints were covered with plates, window joints were recalked with a liquid polymer, and neoprene weatherstripping was fastened with an aluminum angle to the inside of window sills.

Leakage can sometimes initiate further maintenance troubles as on the Employers Casualty Building, Dallas, Tex. Air conditioners had to be operated all weekend to keep the building cool, because of cracks in the wall. When the structure was recalked, this expensive operation was abandoned.

• **To avoid trouble**—To assure construction of weathertight joints that will allow for temperature changes, architects and construction men offer these suggestions for thin-wall buildings:

• Design a facade with a minimum of joints and loose parts—the more joints, the greater the opportunity for leakage.

"Some facades originally were designed like windows instead of walls—with all the percolation paths and joints of a window—and subsequently leaked," says J. P. Travis, president, Universal Corp., Dallas, Texas, curtain-wall manufacturer. "We reduce weather penetration points in individual framing members with more versatile integrated extrusions, so that one extrusion receives both glass and aluminum panel."

• Avoid skimpy connections. Make sure joints are adequately lapped. Specify continuously welded joints wherever possible. (Spot welding is not considered adequate by most engineers.) Any joint that is not continuously welded should be sealed with such materials as liquid polymers, neoprene or vinyl gaskets.

• Use proper flashing. "Build flashing up about 5 in. behind weepholes, and never leave any open joints," says J. J. Healy, of Harrison and Abramovitz, architects, New York City. "Flashing behind expansion joints should be a minimum of 6 in. for a building located in a 100 mph wind area."

Don't couple dissimilar metals without providing isolation between them. If flashing material is different from the metal of the facade, staining and galvanic corrosion may occur.

• Design a thin curtain wall so that expansion and contraction is arrested at least at every other floor; don't let it accumulate over the height of the building. And don't rely on the calking compound alone to take up expansion and contraction.

• Make some provision for testing the facade prior to erection. For example, General Bronze Corp., Garden City, N. Y., panel manufacturer, subjects curtain wall panels to torrential rainfall and gale winds, using test equipment to simulate the weather.

• Specifications should fully describe the glazing installation and leave little to the imagination of workmen. Instructions like this, "All glass should be installed by skilled mechanics and in accordance with the best trade practice," are not sufficient. Glazing should take place only when the sash is dry—calking compound will not stick to a wet surface.

The relationship between size of glass opening, size of panes and total depth of the rabbet should be carefully coordinated and specified. Spacers and setting blocks should be called for to center glass in the rabbet.

• Avoid splitting responsibility. "When erection of a facade and its integral parts are not controlled in entirety by one subcontractor, you're asking for trouble," says Peter DeJongh, chief structural engineer of George A. Fuller Co., New York City, general contractor.

"Divided responsibility can easily lead to improper fit of panels and glass, hence leakage. Our company insists that erection of the facade and its integral parts, with the exception of glazing, be handled by one subcontractor. Even though it is customary to have glass installed by a separate contractor, we recommend that the facade contractor have one of his men present when the glass is put in, thus reducing the likelihood of faulty installation."

2. Controlling the Sun

• **Glass walls**—Many thin-wall buildings have extensive window areas; some windows extend from floor to ceiling

Plastic calking gunned around windows has proved successful in stopping leakage.

(like those of the Seagram Building in New York City.)

While large window areas may be considered desirable from the esthetic point of view, they can transmit inside most of the discomforts of outside temperature variation and cause heating and air-conditioning problems.

In some buildings, heating and cooling are necessary simultaneously on the same floor. The southern and western side of such buildings, subject to intensive sun rays, may register 140 F on a winter day, while the shaded eastern and northern exposure may register 0 F.

One unusual case is the nine-story Standard Federal Savings building in Los Angeles. While outdoor temperatures were in the 50's, office temperatures inside were in the 90's—even with 200 tons of refrigeration operating to capacity.

The building's southern and eastern walls incorporated continuous strips of heat-absorbing glass between continuous spandrels. When waves of energy from the sun went through the glass, they were converted into heat and trapped inside. During the summer, when the sun's angle of incidence climbed to 86 deg, the offices were comfortable. But in winter, when the sun moved lower, the building's surfaces were subjected to heat waves that were almost perpendicular to the walls. On Dec. 21, with the sun at its lowest angle, the temperature inside the vertical blinds was recorded at 140 F.

"One telephone was constantly out of order. We finally found it wasn't working because intensive heat, coming through the window, was melting the rubber disc in the apparatus," the building manager said. "Tenants were constantly threatening to move out and one almost sued."

After several unsuccessful attempts at correction, an effective sun shade was found. A steel screen, hermetically sealed between two pieces of glass, accomplished what normal heat-absorbing glass with smaller bits of metal, could not. In 1956, the entire glass expanse of the Standard Federal Savings building was converted to this metal and glass innovation. This cut refrigeration costs in the building at least 30%.

• **Blistering paint**—Tishman Realty Co., Inc., ran into difficulties with one of its early glass spandrel buildings in Los Angeles. Heat penetrated the clear glass and caused the black paint on the backup block to blister. Condensation and moisture also appeared on the inside wall at the point of greatest heat penetration. As an immediate, though temporary correction, the block was repainted (this required removal and reinstallation of the glass). Insulation was put on the office side of the wall behind the spandrels, between window sill and floor.

A New York City skyscraper with spandrels of rough wire glass had similar troubles. A vinyl enamel had been sprayed on the inside face of the glass to give a dark-colored effect. The wire glass, however, became so hot in the sun that the enamel peeled off in patches and eventually ruined the appearance of the building. Every single light of glass had to be replaced by a fused glass with a reflective back.

(However, in other instances, vinyl enamel sprayed onto plate glass has not peeled. It's reported that successful applications were made on polished, not rough, plate glass. The cleanliness of the glass before spraying also is believed to have a major effect on the continued adherence of the enamel under heat.)

• **Effective control**—Shading devices on exterior walls are being used successfully for flexible control of weather conditions inside some newer buildings. Many architects and builders believe that shades are among the best ways to regulate the amount of heat, light and cold entering a structure.

The principle types of shading devices now in use include:

- Horizontal louvers.
- Vertical louvers, fixed or operable (some with light-sensitive mechanisms that make the louvers swing around and adjust themselves automatically to the direction of the sun).
- Sun canopies or an overhang formed by an extension of the floor slab over windows.
- Directional glass block—a cross between a transparent window and an opaque wall used in place of glass. It acts as insulation and also controls the amount of light rays entering a building.

The use of heat-absorbing glass panes (instead of regular glass) has also aided in preventing heat buildup inside thin-wall buildings.

A recent report on a curtain-wall study by Princeton University stresses the need for incorporating better sun control in building design. It stresses these points:

- Location of window areas without regard to the sun can increase cooling loads received through walls more than two and one-half times. Sun-control devices or design should take into account both the hottest and coldest periods of an area in order to function effectively.
- When a large proportion (75%) of the wall area is enclosed in unshaded, clear plate glass, the 20 year cost of air conditioning required just to offset heat gain through the wall is estimated at nearly $23 per sq ft of wall.
- Partial shading is far more effective in reducing cooling load than heat-absorbing glass.
- The insulation value of the opaque area of the wall has little significance in unshaded walls when 25% or more of the total wall area is glass. Its importance increases, however, in proportion to the extent of shading.

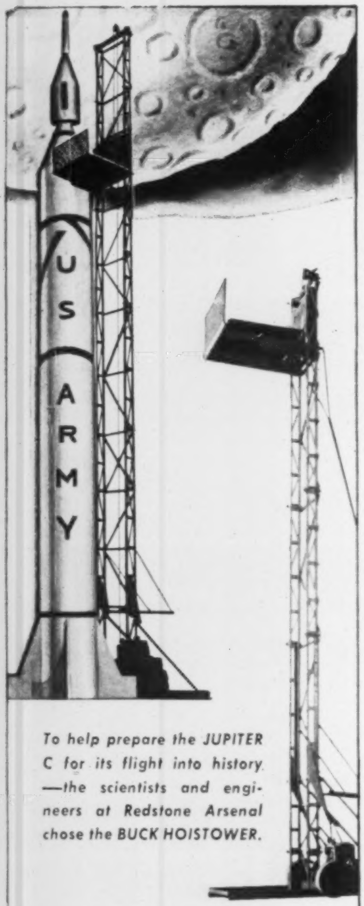
3. Avoiding Other Defects

• **Wet walls**—Increasing use of built-in air conditioning systems for newer buildings has brought with it a reported increase in condensation on the inside of building walls.

"The movement of air caused by such systems during winter heating can produce a much higher moisture content in the air than do conventional heating methods. For reasons of economy, intake ducts are often located on the inner walls. The curtain wall is, therefore, the coldest wall in the room and only a nominal temperature drop at the window is needed to cause condensation," explains H. E. Machamer, manager of product & market research, Ceco Steel Products Corp., Chicago curtain-wall manufacturer.

"Condensation does not appear to be a source of trouble with those curtain walls where convectors are placed along the wall under the windows and thus keep the wall nearer to room temperature," he says.

"Vapor penetration can be controlled by inserting a vapor barrier in or on the interior side of the wall, thereby keeping moisture in the room in a gaseous



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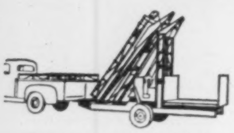

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. . . Avoiding errors on thin walls

state," stated J. P. Travis, of Universal Corp.

Fuller's Mr. DeJongh adds, "Condensation should be led out of the building with gutters at each sill and with flashing leading the water to the outside through weepholes."

In cold climates particularly, joint assemblies should not be built with through metal or other heat-conductive elements. They contribute to heat loss and often cause condensation and even freezing, either within the joint or on the interior face of the building wall, the Princeton report states.

• **Weaving facades**—"Tin canning" is the term coined for the waviness or apparent imperfection that sometimes appears on a supposedly plain metal panel. It may be caused by poor workmanship during fabrication, improper venting of panels to equalize the pressure inside or failure to allow for thermal expansion.

There are several ways to prevent tin canning:

Multi-faceted patterns impressed on the metal will improve panel strength, reduce waviness and help take up the effects of expansion and contraction (and provide decorative treatment for the exterior of the building.)

Rigid panels of sandwich construction are composed of thin metal backed with a less expensive, thicker, lighter, non-corrosive material. The backing reduces stress and prevents the metal from buckling.

A small initial curvature built into the metal is useful to conceal warping, yet is unnoticeable.

• **Erection precautions** — Wall panels have on occasion been damaged during erection.

"To guard against such an occurrence, we recommend that no exterior materials be erected until all concrete floors are poured," says Mr. DeJongh. "This may not be practical when buildings run 40 to 50 stories in height; in that case, protective scaffolds are recommended below the floors to be concreted to prevent concrete from spilling onto the installed parts of the facade."

One of the advantages of thin-wall structures is that the facade can be installed from inside the building, eliminating the need for expensive scaffolding. Still a building frequently is designed in such a way that most of its panels can be erected from the interior —with the exception of one particular area, which requires outside erection. When this happens, the contractor must go to the trouble of obtaining extra scaffolding and the building owner gets a bigger bill.

Another cause of erection trouble is the panel detailer who fails to consider that building products are not fabricated to absolute dimensions. To insure easy assembly in the field, a detailer should allow tolerances for the structure, movement of supports and panels, and for fabrication.

• **Strange noises**—Loud booming sounds have reportedly come at irregular intervals from a number of metal-panel facades. The cause of these noises remains something of a mystery and a subject of varied opinion.

Some engineers say the booming is due to a lack of room for the panels to fully expand and contract. When panels are restrained at the joints, internal stresses eventually become strong enough to cause them to slip; they do so with an accompanying noise.

Others blame the use of metals that are unduly affected by temperature. They say the panels bend when the temperature increases; when the temperature drops, the panels snap back suddenly and loudly to their original shape.

Another explanation is that the noise is made by rubbing and vibration of the panels—the result of improper fastening of facade to building frame.

And still another school of thought contends that the sounds (if they exist at all) have nothing to do with the curtain wall, but are caused instead by such external factors as static electricity or drilling in a nearby area.

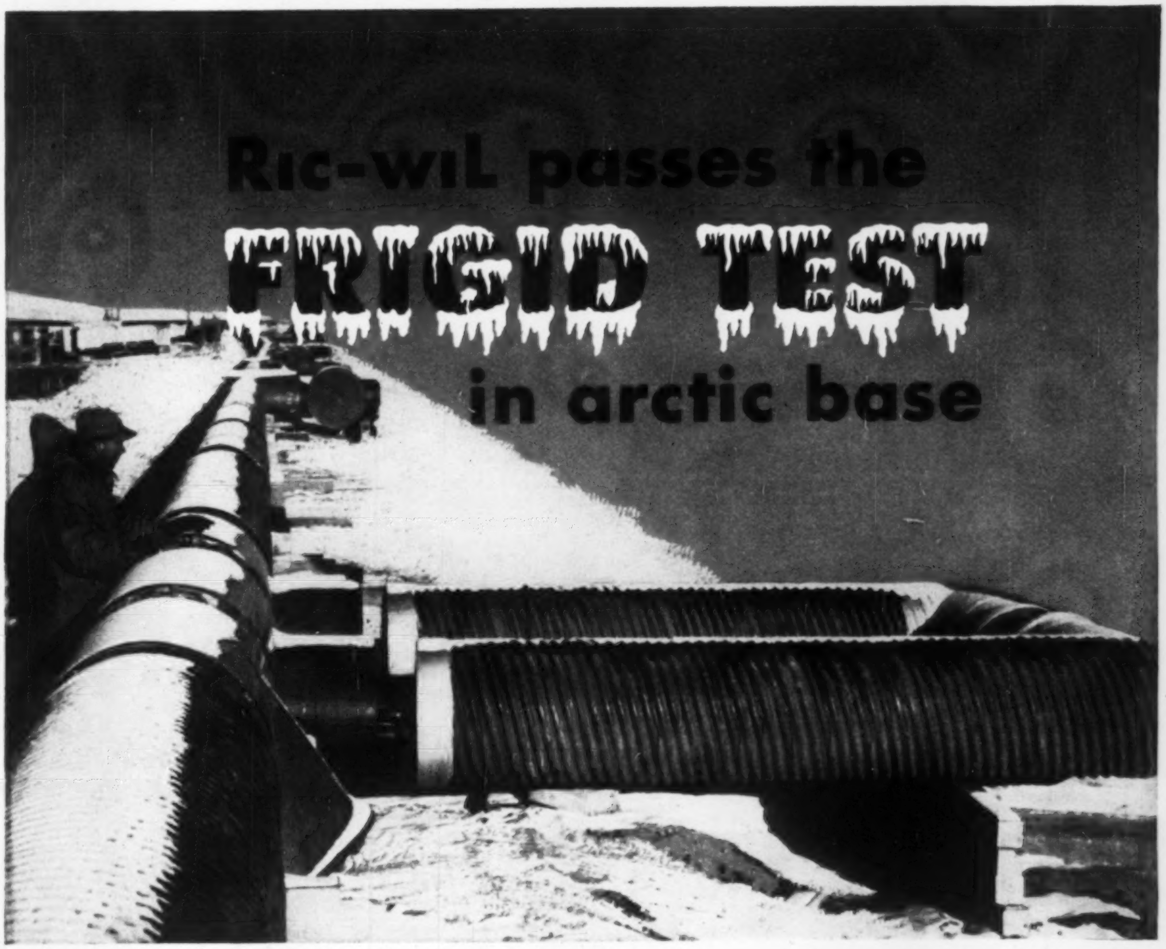
• **Outlook**—Despite the stated defects, the majority of metal and glass-clad buildings erected in recent years were constructed and are being maintained with no trouble.

As architects, engineers and builders grow increasingly aware of the basic requirements of such structures—lightweight construction, ease of erection, weathertightness, provision for expansion and contraction—building flaws grow more scarce. More testing and performance data on thin-wall materials, construction tolerances and the effects of wind, heat and rain are becoming available.

Mock-ups of proposed buildings and testing of full-scale panels are gaining in popularity for predetermining the durability of facades. (Many owners feel the initial expense of building a mock-up is slight compared to possible repair costs once the building is erected.)

Most important of all in minimizing defects is the growing trend toward closer consultation and cooperation between architect, engineer, panel manufacturer and contractor—from the design through the erection stage of a thin-wall building.

Ric-wiL passes the FRIGID TEST in arctic base



Photograph courtesy U. S. Army Engineers, Eastern Ocean District.

Architect—Alfred Hopkins Assoc., N. Y.
Engineers—Metcalf & Eddy, Boston, Mass. & Guy B. Panero, N. Y.
Contractors—North Atlantic Constructors, N. Y.

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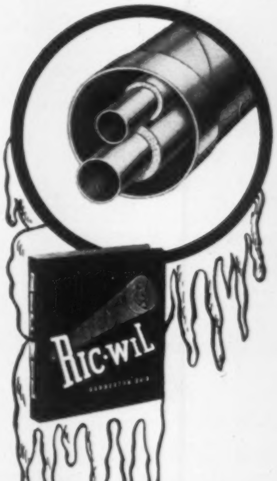

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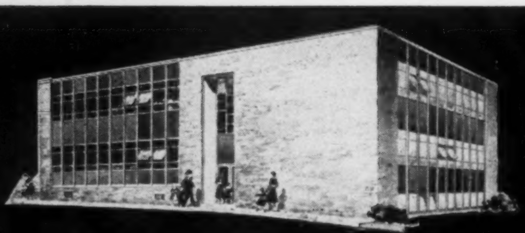
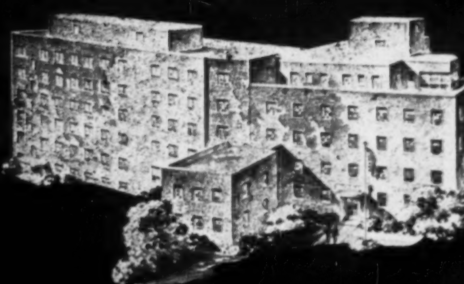
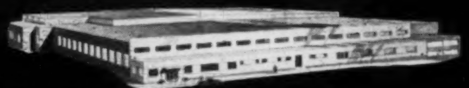


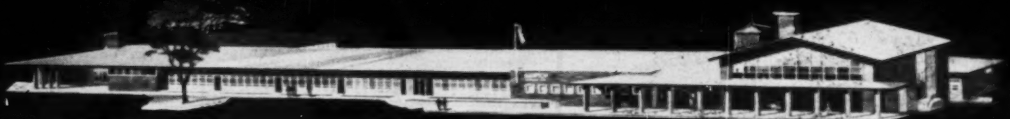
Govans Presbyterian Church School, Baltimore, Maryland
Architect: Finney, Dodson, Smeallie, Orrick & Associates
Contractor: Frantz Construction Company
Windows: Truscon Vision-Vent® Window Wall Unit
Light Gray Supercoat Finish

Riverview Hospital, Red Bank, New Jersey
Architect: Ferrenz & Taylor, New York, New York
Contractor: Walter Kidde Constructors, Inc.
Windows: Truscon Series 138 Double-Hung Windows
Tan Supercoat Finish





Kieckhefer-Eddy Division, Weyerhaeuser Timber Company, Closter, New Jersey
Architect: Saxelbye & Powell, Jacksonville, Florida
Contractor: S. S. Jacobs Company, Jacksonville, Florida
Windows: Truscon Projected Windows, Supercoat Finish



Hampton Elementary School, Baltimore, Maryland
Architect: Smith & Veale
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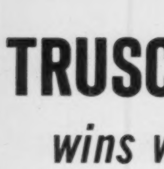
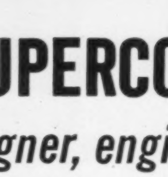


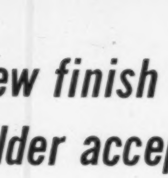
SOAK TEST simulates field condition of windows standing in water.

SALT SPRAY TEST parallels coastal area atmospheric conditions of saline exposure.

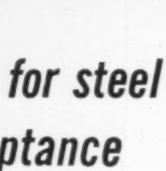


WEATHEROMETER TEST duplicates the field condition of exposure to strong sunlight.

ABRASION TEST simulates abrasive materials rubbing against frames and windblown abrasives.



HUMIDITY TEST parallels field conditions of humidity inside and outside of windows.



ALKALI TEST duplicates field conditions of rain dripping off mortar, plaster, etc.

MAR PROOFNESS TEST simulates field condition of sliding frames across one another in handling.

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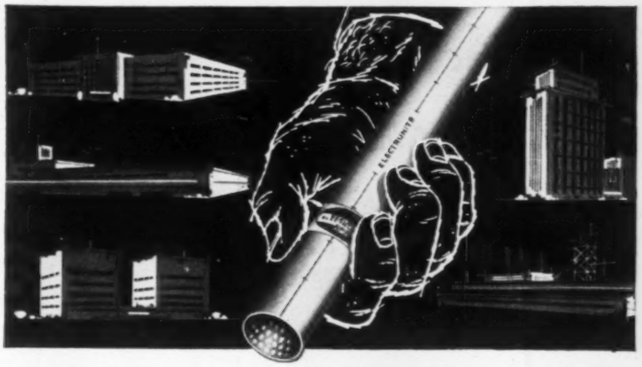

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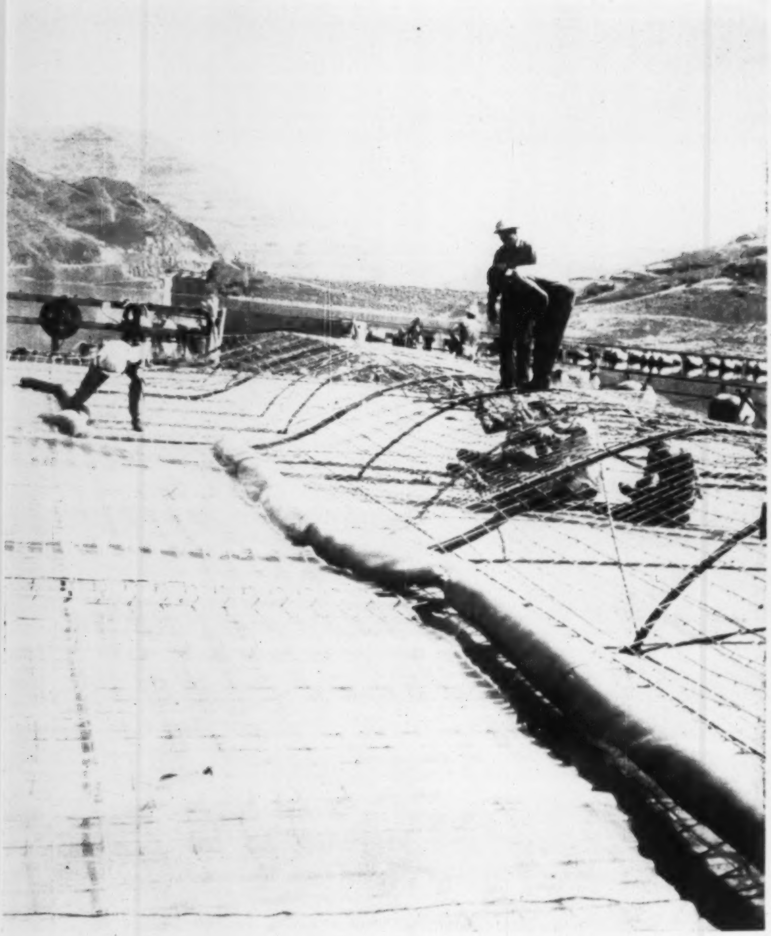
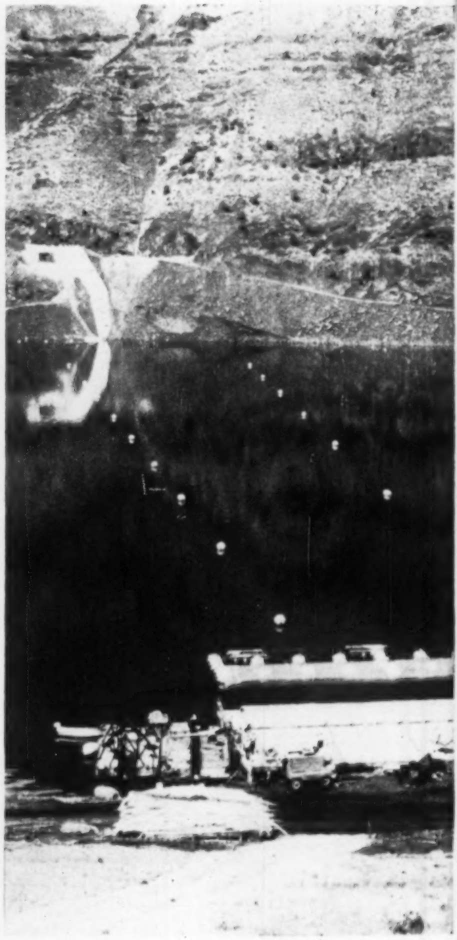


This big steel and plastic fish net, woven on a barge . . .



Will be strung across the Snake

A $5 Million Gamble To Build a Better

- **Hydro development in the Pacific Northwest has been slowed because no one yet has proved out a method of getting downstream-bound fish past high dams.**

- **Now Idaho Power is trying a new plan . . .**

A revolutionary fish trap is being erected across the Snake River above Brownlee Dam by the Idaho Power Co. The $5 million system of nets, skimmer traps and pipeline is designed to save downstream-bound salmon and steelhead fingerlings from a 395 ft drop through Brownlee penstocks or over its spillway.

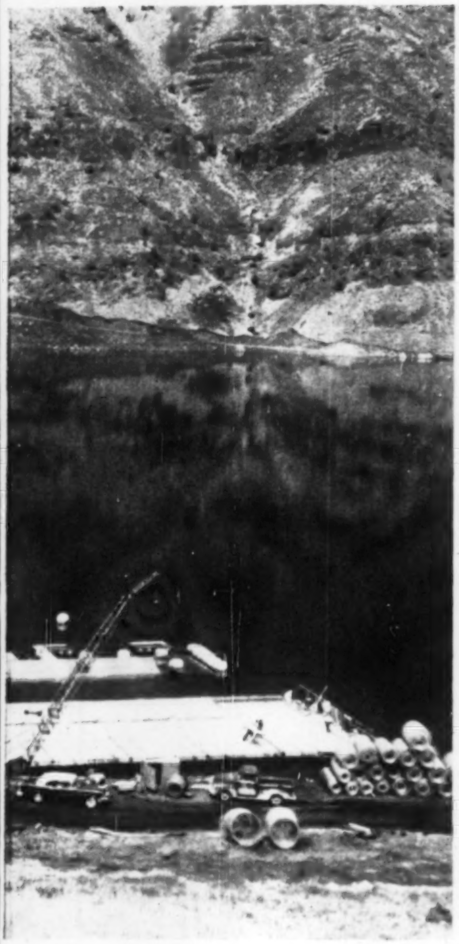
Fish snared in the traps will be transported by tank truck 15 miles downstream for release below Oxbow Dam—the second of Idaho Power's planned three-dam system to develop the Hells Canyon stretch of the Snake.

The fish trap is the first downstream fish handling facility ever attempted. The only assurance it will work is the fact that a similar trap—with much less detail—did manage to save upstream-bound migrants last year.

If it does work, it will eliminate one of the biggest obstacles to hydro construction in the Pacific Northwest—that of getting downstream-bound fingerlings past high dams. Fish moving upstream can be handled reasonably well.

• 3-ply barrier—The barrier above Brownlee is actually a three-ply structure. A plastic mesh with ¼ in. openings is designed to stop even the smallest sea-bound fingerlings. This mesh is backed by a wire screen with 6 in. square openings. Backbone of the net is a waffle-like network of vertical and horizontal heavy steel cables, spaced 20 ft apart. The net will be anchored at each side of the river and sweep across the stream in a 2,800 ft crescent formed by the Snake River's current. Take-up devices at the anchorages for each of the eight horizontal cables will permit lowering or raising the barrier to conform with the changing water level of the reservoir.

The top of the net will be kept at pool level by 100 pontoons, each 6 ft dia and 50 ft long. At the bottom, the



River in Idaho . . .

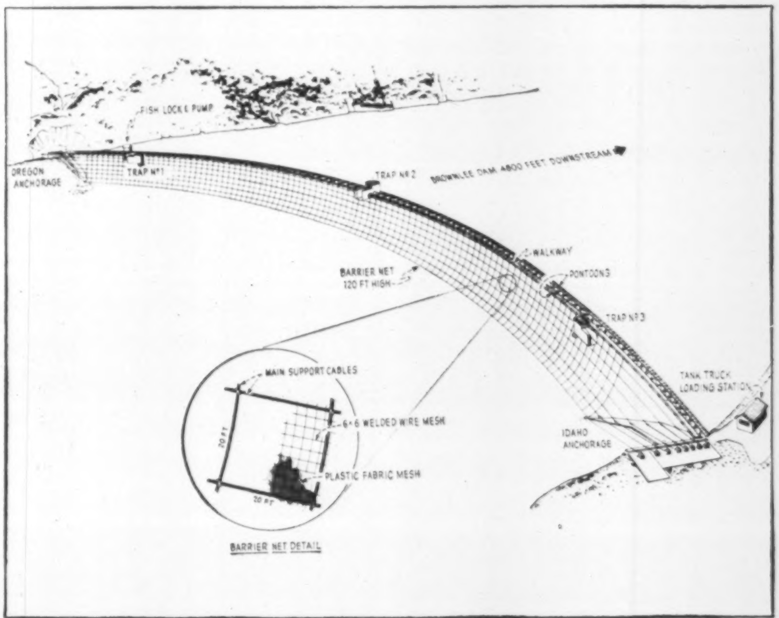
Fish stopped by net will be lured into 30 ft wide traps.

Fish Trap

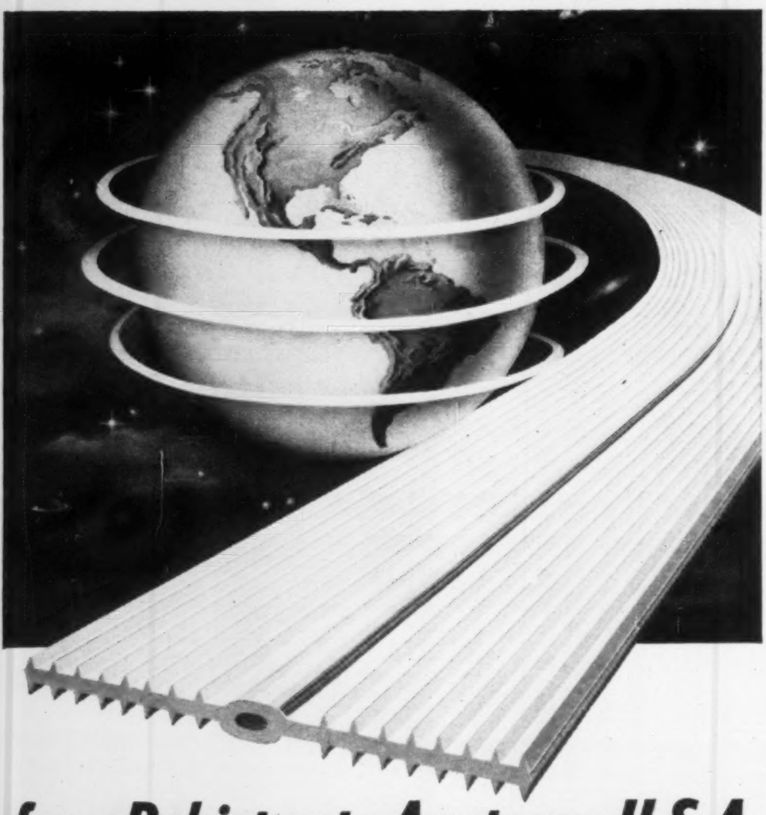
net will be weighted by three steel cables, clamped together to form a single line about 6 in. dia. This will block the river to a depth of 120 ft. Salmon and steelhead seldom swim below 100 ft, studies show.

• **Collecting the fish**—Once stopped by the net, the fish will swim into the vicinity of three skimmer traps at the surface. Each skimmer will be 67½ ft long and 30 ft wide. Two of the traps will face the river banks, the third will be at midstream facing upstream. Artificial currents, created by pumping 40,500 gpm, will lure the fish into V-shaped troughs in front of the traps.

After entering a trap the fish will be sorted according to three sizes by a series of slots. Holding tanks will be provided for small and medium size fish. These tanks will be linked by an 8 in. dia pipeline and a pump-and-lock-


FISH LOCK & PUMP
OREGON ANCHORAGE
TRAP Nº1
TRAP Nº2
BROWNLEE DAM 4800 FEET DOWNSTREAM
WALKWAY
BARRIER NET 120 FT HIGH
PONTOONS
TRAP Nº3
MAIN SUPPORT CABLES
TANK TRUCK LOADING STATION
6×6 WELDED WIRE MESH
20 FT
IDAHO ANCHORAGE
PLASTIC FABRIC MESH
20 FT
BARRIER NET DETAIL

NET WILL SPAN 2,800 ft across Snake River and keep fish from going into turbines.



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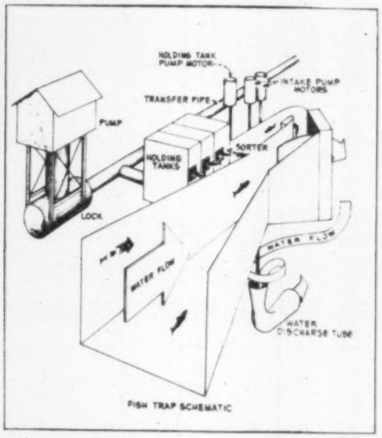
. . . New fish trap



UNIQUE SKIMMER. Smaller fish will swim through pipe to truck loading station on shore. Large fish will be hand carried.

ing system to tanks at a truck loading station on the Idaho side of the river.

In the transfer operation, the rubber pipeline will be flushed and filled with fresh river water. Then the sorting slots on one of the skimmers will be closed and the corresponding holding tanks will be raised by compressed air.

A slide valve will open automatically when the tank has moved upward 15 in., allowing the fish to enter the transfer line. The tank will continue rising and discharging fish into the line until it is halted by a timing device. Then other valves will be opened to carry the fish through the transfer pipeline to the truck-loading station.

The largest fish won't get the pipeline ride. They will be transferred by hand into tanks on a boat, which will be towed to the truck loading station.

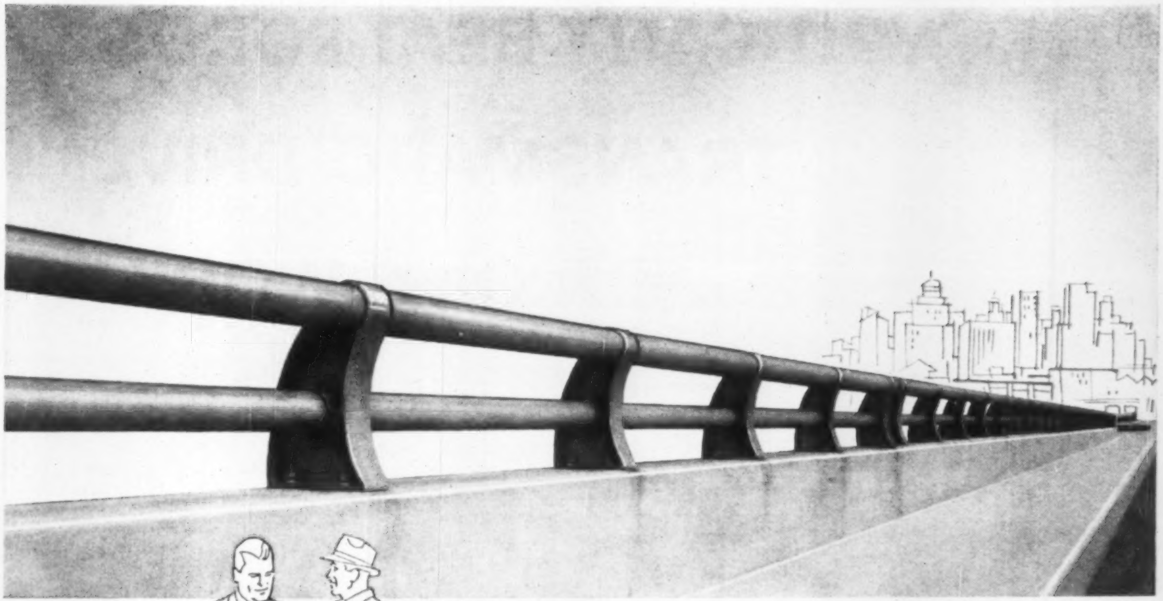
All of the migrant fish will travel in custom-built tank trucks, equipped with oxygen aeration and cooling systems, on the ride downstream to Oxbow.

• **Making the net**—The net is being fabricated on a special barge, 152 ft x 48 ft. The net is laid across the water as the work progresses.

When the net is completed, the pontoons will be attached to the top edge of the barrier. Buoys supporting the anchor cable then will be cut loose, permitting the net to drop into its vertical position.

The top of the net will have a walkway along its full length. Wing nets made of rope will be used to prevent fish from passing around the ends of the barrier. A log boom now being installed upstream will protect the net against floating debris.

The unique fish trap is to be completed in the next month or two. Contractor is Morrison-Knudsen Co., Boise, Idaho, which also is handling the main Brownlee Dam work.



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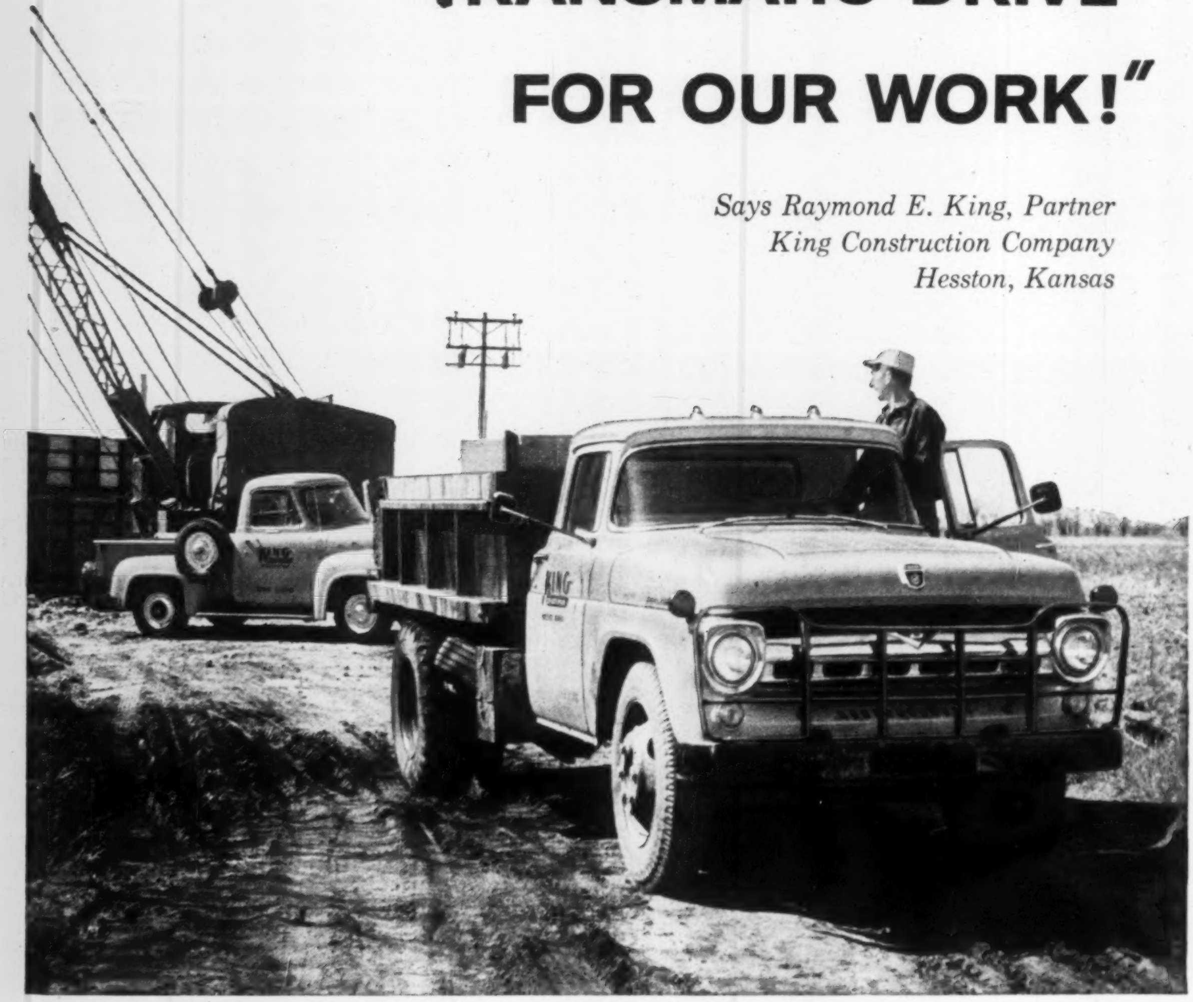


"For off-the-road work and hauling out of sand and gravel pits our Ford two-tonner with fully automatic transmission sure handles the loads

"We've put 42,000 miles on our F-600 dump in the last 9 months and are very satisfied with it. Gas mileage is good and tire wear is reduced. Another big advantage of Transmatic Drive is that you don't tear up axles coming out of sand pits. Also, its torque converter multiplies engine torque to get loads started and prevents harmful engine lugging. To do our job with a truck not equipped with Transmatic Drive would mean buying a truck at least one size larger."

Finance the easy one-stop way!
Ask about the new
FORD FLEET TRUCK FINANCE PLAN!

Bring extra savings to your business . . . make your next truck a FORD!

Official registrations for 1957 show that *American business buys more Ford trucks than any other make*. There are many reasons for this popularity . . . many reasons for *you* to make your next truck a Ford!

To begin with, Ford offers a complete line of over 360 truck models, ranging from pickups to giant tandems. And there are Ford Dealers almost everywhere, ready to help you select the truck best suited for your individual job. They're ready with modern service facilities, trained mechanics and low-priced Ford parts to keep your trucks on the job, earning for you.

Ford trucks are your best buy! Ford's initial costs are *low* and resale value is traditionally high. The modern Ford Styleside pickups are the lowest-priced models available with full cab-wide body . . . giving you 23% more loadspace than any traditional pickup box.

Value-packed Ford Tilt Cab trucks offer exceptional payloads, maneuverability, service accessibility and driving ease. They're America's most popular tilt-cab line *by over two to one!*

Only Ford offers the economy of Short Stroke power in all engines, Six or V-8. And Ford's Heavy Duty V-8's offer new, advanced durability features. The modern Ford Six, available in Light and Medium Duty F- and P-Series trucks, is equipped with an economy carburetor that gives you up to 10% greater gas mileage. It's plenty peppy, too, with more horsepower per cubic inch than any other six in its class.

Ford's rugged cab and chassis construction means these new '58s are built to last. Every Ford has safety glass in every window. All this plus proof that Ford trucks last longer adds up to America's No. 1 truck value.

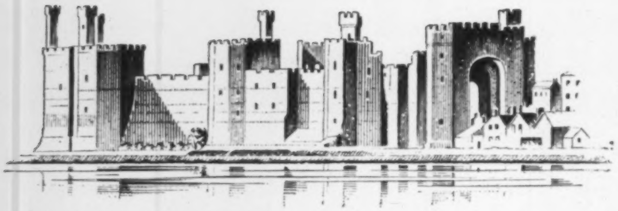
See your local Ford Dealer for the latest in '58 trucks or the best in A-1 used trucks.

King Construction Company's Ford F-600 with 178-hp Heavy Duty V-8 engine is an all-around performer. Transmatic Drive enables driver to easily back truck into position.

Carrying 5 to 6 yards of sand or rock, this Ford dump truck hauls many loads daily from nearby production sites.

FORD TRUCKS COST LESS

LESS TO OWN . . . LESS TO RUN . . . LAST LONGER, TOO!



Caernarvon Castle, in Wales, built in 14th Century, has successfully defied all kinds of weather and the ravages of time. Caernarvon has never been taken by assault.

Wears like stone, durable as castles centuries old

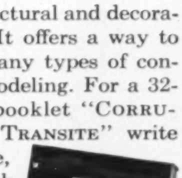
Corrugated Transite withstands all kinds of weather severity on the observation tower walls at a modern airport.

Johns-Manville Corrugated Transite® resists weather and time

Like the famous old stone castles, thousands of original installations of J-M Corrugated Transite are still giving service and protection under conditions which destroy other forms of exterior walls, roofing and interior building materials.

Made of two practically indestructible minerals—ageless rock asbestos and cement — Corrugated Transite will not burn. It will not rot or rust. It has high resistance to acids, to gaseous fumes, to severe temperatures, to vermin and insects. Corrugated Transite actually becomes stronger and tougher with age. It is one of the most enduring building materials ever developed.

J-M Corrugated Transite is used in the construction of industrial buildings, offices, shops, churches, etc. Corrugated Transite can cover an entire building or it can be combined most effectively with other materials for modern architectural and decorative possibilities. It offers a way to save money on many types of construction and remodeling. For a 32-page illustrated booklet "CORRUGATED ASBESTOS TRANSITE" write to: Johns-Manville, Box 158, New York 16, N. Y. In Canada: 565 Lakeshore Road East, Port Credit, Ont.



JOHNS-MANVILLE

JOHNS-MANVILLE JM PRODUCTS

International

Argentina Plans for Hydro Power

To achieve relief from increasing costs of imported oil for its thermal power plants, Argentina plans to construct a series of hydroelectric power plants. Bids on the first one, a 700,000 kw dam and powerhouse, were called recently.

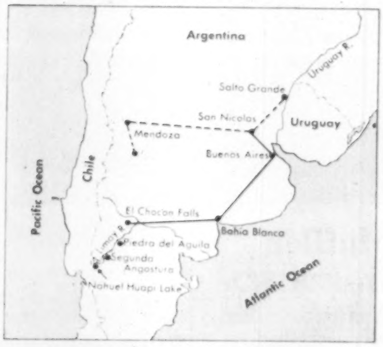
Of the country's present 2 million kw of installed capacity only 5% comes from water power. Steam power plays the dominant role because Argentina's water resources are located in the far western slopes of the Andes mountain range, while consumer centers are clustered along the Atlantic coast. Long distance transmission has been uneconomical in the past. This has kept the country from taking advantage of its natural riches.

Now with the erection underway of long-distance 380 kv power transmission lines, the South American country has great hopes of utilizing its water power potential.

The first hydro plant projected by the Water and Power Board is the Salto Grande station on the Uruguay River. This station would supply 700,000 kw to Buenos Aires, 280 miles away. But it may take several years before work can start, due to international negotiations involved. The Uruguay River is also the border line between Uruguay and Argentina.

A second major project under consideration is the vast Limay River project—the development closest to a construction start.

Completion of this project is planned in various stages; a bid call in 1957 on the entire project was rejected because it drew only one bid for $300 million, which was considered too high.



HYDRO POWER will serve Argentina's metropolitan areas through El Chocon-Buenos Aires transmission lines. Other links will run to Mendoza and Salto Grande.

First stage is erection of a 700,000 kw power station at El Chocon Falls on the Limay River. Second stage would be a 430 ft high dam at Piedra del Aguila, which would have 900,000 kw of installed potential. A third dam, 363 ft high, would be built 230 miles farther upstream to produce 450,000 kw. Finally, at Segunda Angostura, a 220 ft dam in the Limay River headwaters region would produce 100,000 kw.

• **First dam**—The dam at El Chocon Falls will have a maximum height of 230 ft and a crest length of 4,592 ft. Its spillway is designed to pass a flood of 282,400 cfs.

The power station near the dam is to function under a 197 ft gross head and its 700,000 kw of generators would produce 2.8 billion kwh a year.

Bids for El Chocon, called recently, are to be opened September 22.

Gas Line Pressure Drop To Produce Electricity

An experimental installation to produce electricity and provide refrigeration by using energy of compressed gas in a trunk pipeline is being built by the Russians near Kiev.

The installation consists of turbines, a generator, heat exchangers and refrigerators.

The goal is to utilize the energy released (and presently wasted) when the pressure of 235 psi near the point of consumption in the pipeline is lowered by 75 or 80%. After being heated to about 80 C at a pressure of 250 psi, the gas will turn two turbines before being directed through a distribution station to the city mains. Generators spun by the turbines will produce 575 kw.

Welded Aluminum Walls Enclose Soviet Building

Moscow builders are using aluminum exterior walls for a new five-story apartment house. The outer surface of the wall is $\frac{3}{64}$ in. aluminum sheets welded edge to edge. Two $2\frac{1}{4}$ in. layers of insulating material will be glued to the inside of the sheets and covered with a thin layer of plaster.

Soviet architects say the building weighs only about a quarter as much as a building of the same size of masonry construction.

(*International continued page 54*)

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NEXT 15 MILES
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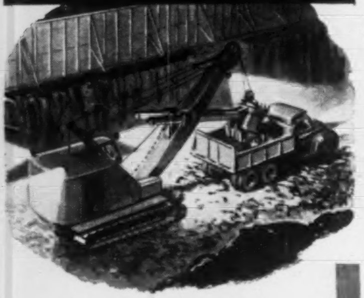
ELECTRIC PLANTS



Reliable on-the-job power for floodlights, power tools

Kohler electric plants have won a reputation for smooth running efficiency, low-cost operation. Used on major construction projects the world over. Backed by the 85-year-old Kohler tradition of first quality products. Sizes from 500 watts to 100 KW, gasoline . . . 10 KW to 100 KW, diesel. Write for folder A-44.

KOHLER CO. *Established 1873*
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Model 5MH21, *5 KW, 115 Volt AC with housing. Manual starting.*

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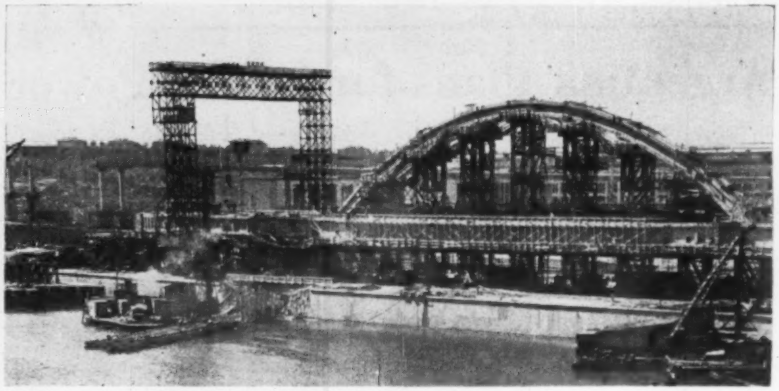
Enameled Iron and Vitreous China Plumbing Fixtures • Brass Fittings • Electric Plants • Air-cooled Engines • Precision Controls



Soviets Precast Arch in Parts

Precast concrete components are assembled and prestressed to make tied arches spanning 354 ft in a new Soviet bridge across the Moscow River. Both the curved ribs and straight horizontal ties are made of the precast parts.

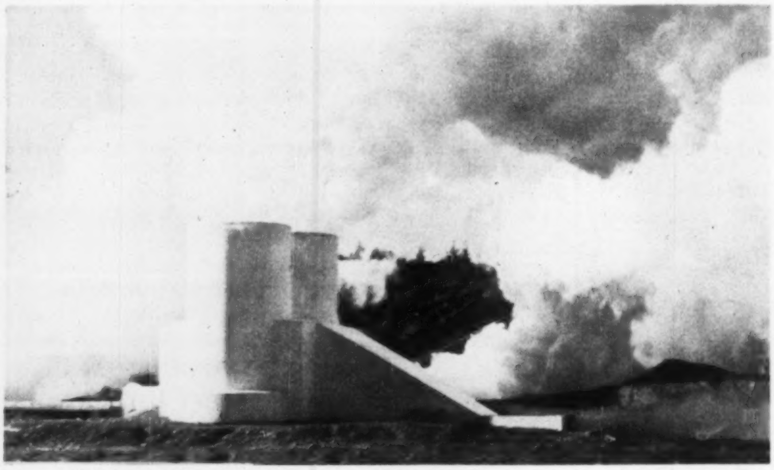
The bridge has two decks—an upper one for highway traffic, a lower one for subways. A subway station is at midspan.

Approaches to the bridge are 98 ft viaduct spans. These are also precast construction, and most elements are prestressed.

The main prestressing force in the tied arches is along the horizontal members, which are attached to the ribs by vertical steel hangers. Smaller prestressing forces are applied in the ribs.

The bridge includes eight tied arches. They were assembled in pairs on barges, floated into position and lowered onto previously constructed piers by linking the barges.

Viaduct members were cast on the site and hoisted into place by a pair of big gantry cranes that straddled the casting area and bridge. These cranes are common equipment on bridge jobs in Russia, in contrast to normal U. S. practice of using crawler cranes or heavy truck cranes. The Russian rigs can be assembled in various heights and spans as needs dictate.



Concrete Pipe Used as Muffler

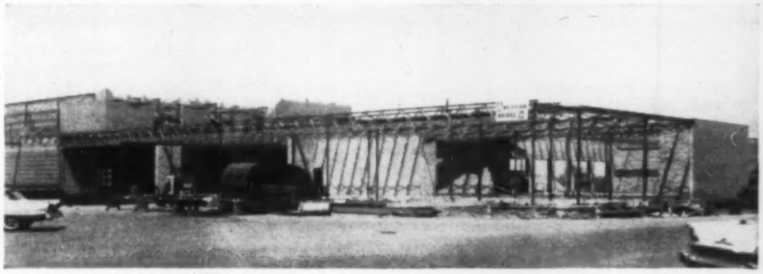
Two 6 ft dia centrifugally spun reinforced concrete pipes are being used to mute high-pitch noise caused by escaping high pressure steam at New Zealand's prototype geothermal power plant in Melbourne. At the orifice, steam velocity averages 800 fps at 380 F and at pressures of 200 psi.

Concrete was chosen because the silencers had to cope with sudden expansion and a temperature gradient of 140 F. The installation, which is proving successful was done by Humes Ltd., of New Zealand.

AMERICAN
BRIDGE

In one of Montgomery Ward's newest stores

USS AmBridge steel joists permit post-free floors



Montgomery Ward Retail Store, Gary, Indiana; Owner: Village Shopping Center, Inc.; Designer: Frederic W. Collins, A.I.A.

This two-story building, an addition to the Village Shopping Center in Gary, Indiana, will soon house Montgomery Ward & Company's newest store. The store will provide 122,965 square feet of merchandising space and will employ 250 people. **The builders of this store,** the Superior Construction Company, of Gary, are using 240 tons of USS AmBridge Longspan Steel Joists and USS AmBridge Standard Steel Joists for floor and roof construction. Longspan Joists permit post-free floors... allow the maximum in open-floor area for sales displays.

USS AmBridge Standard Steel Joists provide rigid, lightweight, economical construction, suitable for any type of floor, roof, or ceiling. Their underslung, open-web design allows free passage of pipes, ducts, and conduits in any direction. The ease of handling these joists cuts installation time and permits other trades to start work quickly. American Bridge also supplied the structural steel for this job.

FREE BOOK—To get full details on all USS AmBridge Steel Joists, send for our free catalog. This 40-page catalog contains complete design information for spans up to 120 feet. Write to American Bridge Division, United States Steel Corporation, 525 William Penn Place, Pittsburgh, Pa. Or contact our nearest contracting office.

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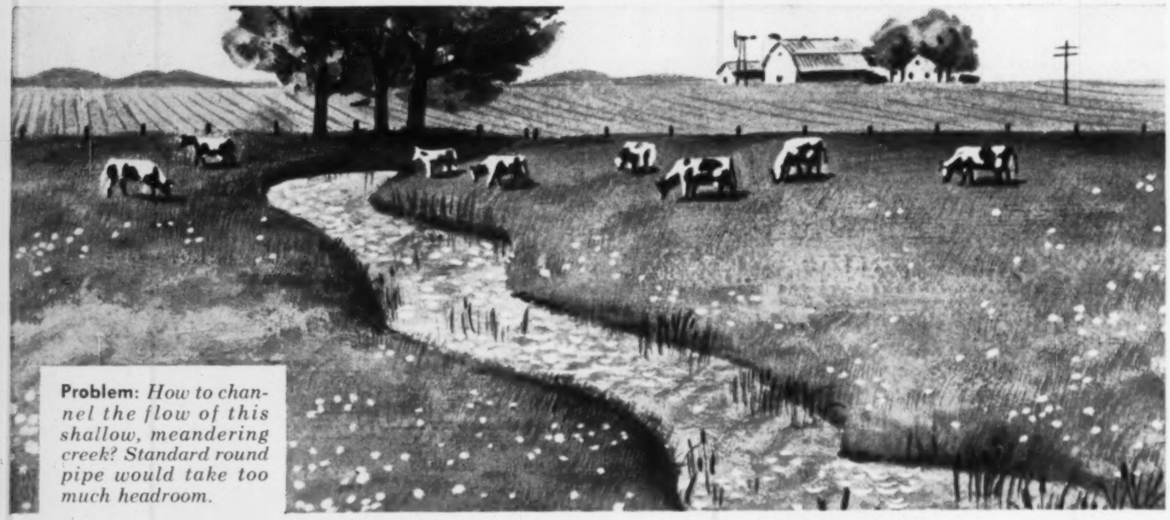
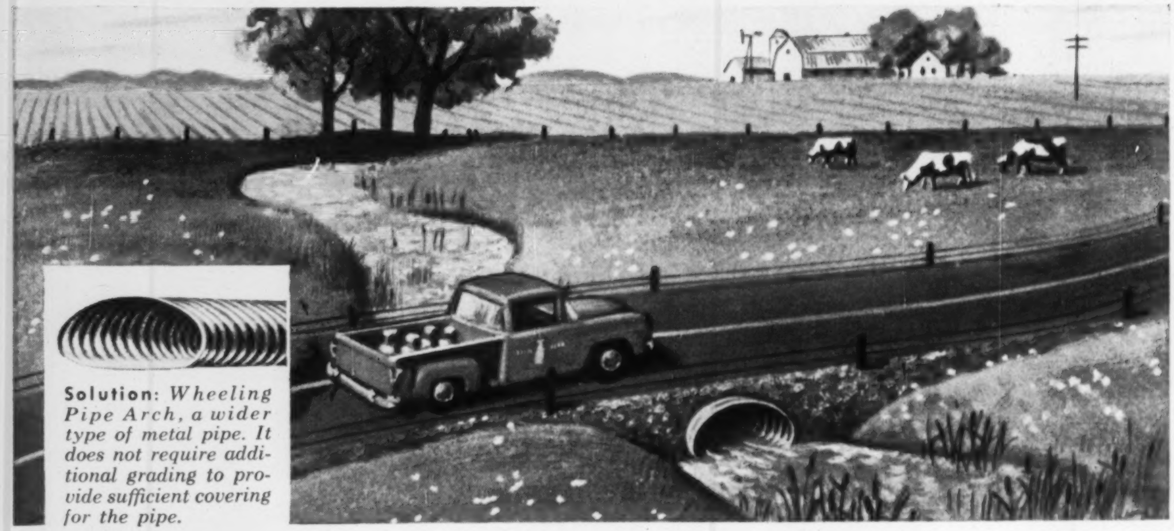
American Bridge Division of USS United States Steel

SJI STEEL JOIST INSTITUTE MEMBER

General Offices: 525 William Penn Place, Pittsburgh, Pa. Contracting Offices in: Ambridge • Atlanta • Baltimore • Birmingham • Boston • Chicago • Cincinnati
Cleveland • Dallas • Denver • Detroit • Elmira • Gary • Houston • Los Angeles • Memphis • Minneapolis • New York • Orange, Texas • Philadelphia
Pittsburgh • Portland, Ore. • Roanoke • St. Louis • San Francisco • Trenton • United States Steel Export Company, New York



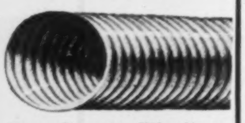
Problem: *How to channel the flow of this shallow, meandering creek? Standard round pipe would take too much headroom.*



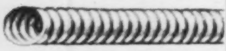
Solution: *Wheeling Pipe Arch, a wider type of metal pipe. It does not require additional grading to provide sufficient covering for the pipe.*

Headroom limited?

Use Wheeling Pipe Arch for fast drainage!



Large-diameter Wheeling Culvert Pipe—easily controls normal flow of fast-moving streams.



Small-diameter Wheeling Metal Pipe—ideal for farm and home drainage requirements.

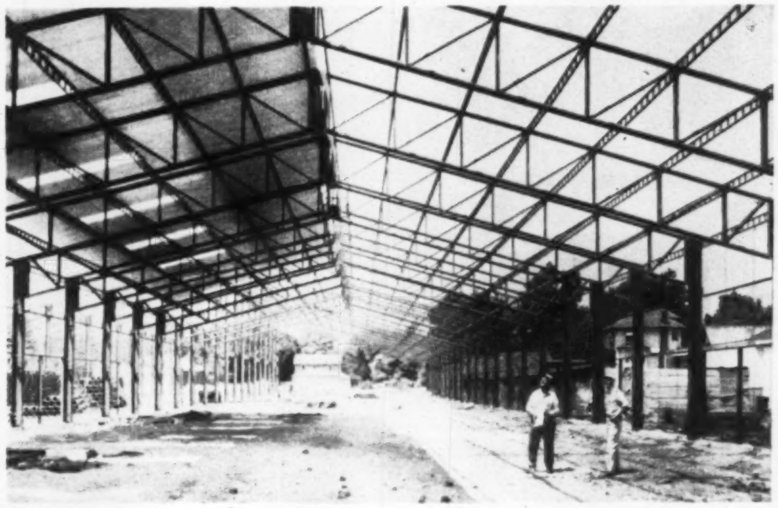
Particularly effective for shallow streams, Wheeling Pipe Arch assures fast, efficient water flow. That's because it has a wide, comparatively flat base that permits more rapid drainage than round pipe of equal area. And it has the same toughness and durability that made other types of Wheeling Culverts famous.

Wheeling Metal Culvert Pipe or Pipe Arch, in copper-bearing steel or copper-bearing pure iron, plain galvanized or bituminous coated (with or without paved invert) is available in a wide range of gauges and diameters to solve any drainage problem.

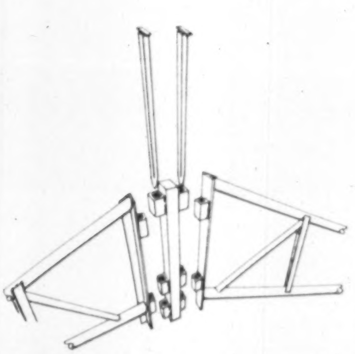
Contact your nearest Wheeling warehouse, culvert plant, or sales office. Wheeling Corrugating Company, Wheeling, West Virginia.

WHEELING CORRUGATING COMPANY - IT'S WHEELING STEEL

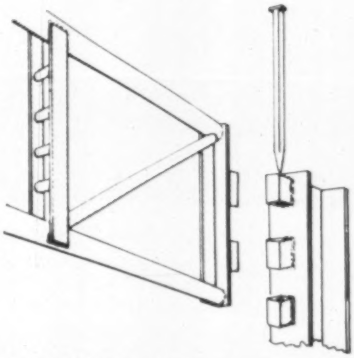
WHEELING WAREHOUSES, SALES OFFICES OR CULVERT PLANTS ARE IN: Atlanta Boston Buffalo Chicago Columbus Des Moines Detroit Houston Kansas City Louisville Madison Martins Ferry Minneapolis New Orleans New York Peoria Philadelphia Richmond St. Louis



TUBULAR STEEL building framework goes together quickly in the field without rivets, welds, welds or bolts. All fabrication is done in the factory.



KEYSTONE MEMBER joins truss halves at midspan when there are no columns.



SQUARE PINS inserted in holes fasten roof trusses to columns.

Pin Connection Speeds Erection

A tubular steel building frame now available can be erected rapidly by a crane and a few men working with hammers only. A patented connection, called "Swiss-Lok," is the short cut. It keeps erection time for most models under a week.

Several frames of this type already have been installed—for a church, a factory and coke oven sheds.

The members are entirely factory fabricated and arrive at the site ready for assembly. No field riveting, cutting or welding is necessary. Bolting is limited to foundation bolts.

The frame is put together by inserting square pins into holes (similar to door hinges).

Erection is simple. After columns are erected and bolted down, the trusses are raised into position by a crane and fastened with a heavy pin at each end.

If the building is of the clear span type, without center columns, the butting truss halves are locked together on the ground with a "keystone" member and raised as a unit to be locked into final position at the wide columns. The keystone permits building widths of more than 100 ft without intermediate columns.

In very wide buildings, or where center columns are required for lift beams or crane runways, trusses frame into the center columns.

The locking device or a variation is used at every connection, including those of the tubular purlins.

The framing does not rely upon wall or roof covering for rigidity or support. It may be used with any type of siding and roofing.

• **Less steel needed**—The tubular structure is one-third lighter in weight than a conventional steel frame, and thus reduces dead load, shipping and material costs. All design stresses, however, conform to standards of the American Institute of Steel Construction, the manufacturer claims.

Tests were run on two 60 ft trusses fabricated for a church building. The trusses were designed for a load of 65 lb per sq ft, but were subjected to a uniform load of 182 lb per sq ft. Deflection at the peak was less than 2.75 in.

The Swiss-Lok frame was designed for permanent buildings. But it can be unlocked and dismantled, making it practicable also for temporary and portable structure.

Among other advantages pointed out by the manufacturer, the sloping bottom chords of the trusses take up less headroom, and the round sections of pipe allow a minimum of surface for dirt accumulation.

The first sizable factory building constructed of this material was the manufacturer's own plant, which now is being doubled in size. SWISS FABRICATING, INC., CAMP HORNE ROAD, EMSWORTH, PITTSBURGH 2, PA.

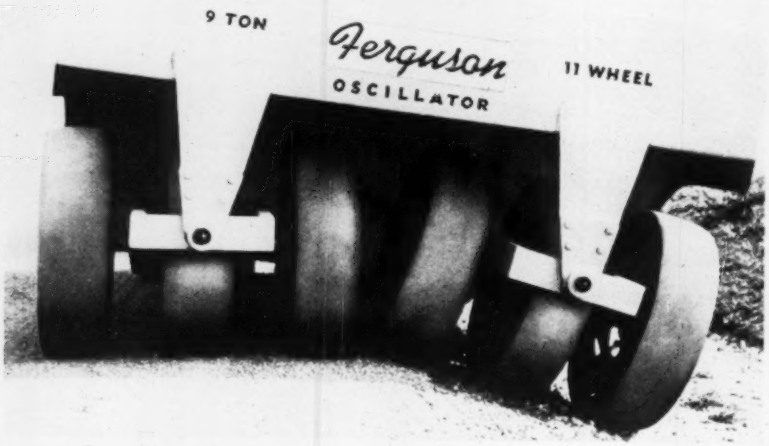
Jaw Crusher Lightened By Overhead Eccentric

A jaw crusher in the 20x30 in. size has been developed by Pioneer Engineering. The crusher is an overhead eccentric type in which the moving jaw is suspended from a shaft that also serves as the pitman. This eliminates double toggles, and extra shafts, and reduces the crusher weight.

The machine can be hydraulically adjusted to produce materials down to less than 3 in. and with this size product, it has a capacity of 95 to 100 tons per hour. When set for a 6 in. minus product, the rated capacity under average conditions, is 190 to 200 tons an hour.

The base is all welded steel and double wall construction. Bearings are self aligning, spherical roller type and are saddle mounted to prevent weave and wobble. It's called the "2036." PIONEER ENGINEERING, DIVISION OF POOR AND CO., INC., 3200 COMO AVE., S. E., MINNEAPOLIS 14, MINN.

(New Products continued page 58)

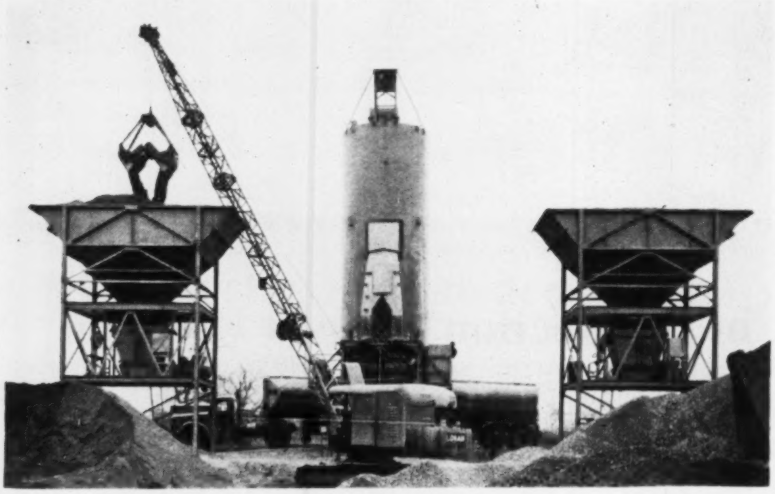


Hard-to-get surfaces are . . .

Rolled by Oscillating Wheels

An 11-wheel towed-type rubber tired roller, known as the Model RT-1100, features specially designed wheel oscillation to provide complete coverage on steep shoulder slopes.

This unit weighs 3,630 lb empty and, fully ballasted, exerts a pressure of 360 lb per in. of tire width. Tapered roller bearings with dust-proof seals are used to assure long trouble-free service of wheels. SHOVEL SUPPLY CO., P. O. BOX 1369, DALLAS 21, TEX.



Batcher Features New Cement Plant

Another automatic aggregate batching plant for highway construction work is on the market. Manufacturers claim that it sets up fast and dismantles quickly in three easy-to-handle sections that can be transported easily.

This particular batching setup includes a new cement plant with integrated elevator and twin batchers for fast job erection. The entire plant has an "in-line" arrangement so that the batch trucks can drive straight through without having to turn.

All batching mechanisms operate automatically, and are actuated by the truck driver who touches a button without leaving the truck. HELTZEL STEEL FORM AND IRON CO., WARREN, OHIO.

(*New Products continued page 60*)

HAMMOND TANKS
for LIQUID or DRY STORAGE
above or below ground

CONE ROOF; FLOATING ROOF, DIAPHRAGM AND LIFTER TYPES FOR PRODUCT CONSERVATION

SPHERES FOR GAS AND LIQUID STORAGE

WATER RESERVOIRS ELEVATED TANKS STANDPIPES

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PLATE FABRICATION
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Delivery in 24 hours or less, any place in the United States. D-A offers this important service by maintaining more than 50 strategically located warehouses. Yet, wherever you take delivery, in Burbank or Boston, Tacoma or Tampa, each D-A product meets the same rigid specifications in every respect . . . for all D-A lubricants are compounded to the *same* formulas from the *same* materials.

Are you throwing away good lube oil? D-A technicians will analyze your used engine oil and your fuel . . . then recommend maximum safe drain periods for your engines. Your local D-A Representative will be glad to outline this free money-making service.

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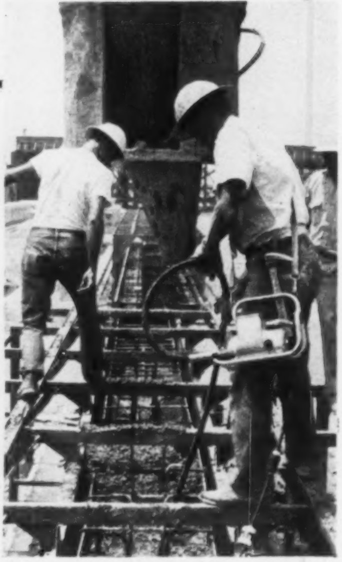

Hard to reach places are easy for...

the powerful Viberette

in prestress work in narrow forms

Hard-to-reach places and narrow stems of prestress T-sections are no longer a problem when the new Viberette Vibrator is on the job. It is designed especially for prestress and narrow form building construction.

The *12,000 rpm speed* and low amplitude of Viberette produces extremely effective vibration in consolidating low slump concrete.

A *small diameter* flexible drive with replaceable rubber tipped head makes it ideal for concrete compaction in constricted areas.

A *powerful,* universal ¾ HP electric motor gives Viberette plenty of "kick" for thorough vibration.

The 19 lb. Viberette Vibrator with new, dual grip, skid type handle makes the entire unit easy for one man to operate. A new shoulder strap attachment leaves both hands of operator free to manipulate the flexible drive.

Features

Interchangeable heads—1", 1-5/16" and 1-3/4" dia.

Flexible drive lengths—1' to 20'

Quick release drive connection

Replaceable rubber or steel tips

Contact your dealer or write direct for detailed information.
Viber Company, 726 South Flower Street
Burbank 18, California

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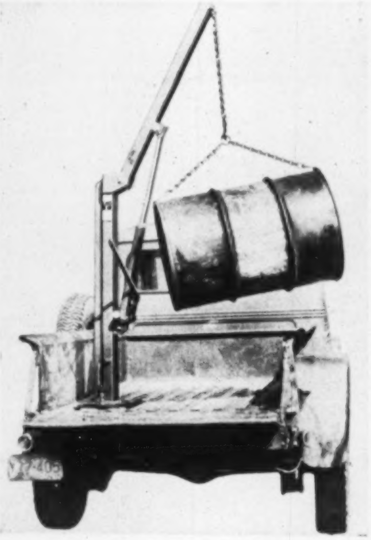
VIBRATORS

Pioneers and leaders in the manufacture of vibrators.



New Lightweight Crane Developed for Trucks

The "Little Oscar" truck mounting crane weighs 99 lb, but, according to the manufacturer, will lift loads up to 1,000 lb and is designed for use on trucks. The mounting well mounts flush with the deck of the truck and the crane is easily removed when a full truck deck is required.

One feature of the equipment is that it provides low-cost lifting power for heavy, hard-to-handle truck loads. The boom raises 88 in., drops to 23 in., and is 45 in. in length. An extra length boom, which adds 15 in. to reach, also is available. Star Machine & Tool Co., 201 S.E. Sixth St., Minneapolis,

Tandem Roller Features Folding Transport Wheels

A 4 to 6 ton tandem roller with hydraulically operated transporting wheels having a "fold away" feature is on the market.

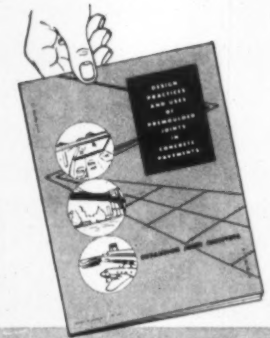
Called the Buffalo-Springfield Model KT-8 Portable Tandem Roller, the machine features what the manufacturer says is a new concept in the retractability of towing wheels. When not in use they are raised hydraulically and folded into the sides of the main frame.

Because of the fold-away wheel feature, the new roller can be worked adjacent to obstructions, high curbs and forms without removing the wheels. The design also permits exceptionally high ground clearance.

The Model KT-8 also features a torque converter drive. Buffalo-Springfield Roller Co., Div. of Koehring Co., Springfield, Ohio.

. . . modern, properly jointed highways provide greater value for dollars spent!

NEW "DESIGN PRACTICES" MANUAL AVAILABLE FREE OF CHARGE!


DESIGN PRACTICES AND USES OF PREMOULDED JOINTS IN CONCRETE PAVEMENTS

The first of its type ever produced . . . prepared by the major manufacturers of premoulded joint materials. You'll find the comprehensive technical data, premoulded joint applications and installation information, a valuable addition to your pavement design file. Send coupon today for your copy.

Highway planning and design level thinking should not only be based on the initial cost of new highways, but on the over-all lifetime costs. In fact, we should be sure we are not being "penny wise" and "pound foolish" by looking only at initial costs, but let's build highways that will provide a greater and more economical service lifetime. Plan now, at the design level, to reduce these massive yearly maintenance costs by designing modern, properly jointed highways that will provide maximum service with a minimum maintenance expense. Remember, every saving realized through reduced maintenance, will provide added miles of highways for the same expenditure of public funds.

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Please send me, without obligation, my free copy of "Design Practices and Uses of Premoulded Joints in Concrete Pavements."

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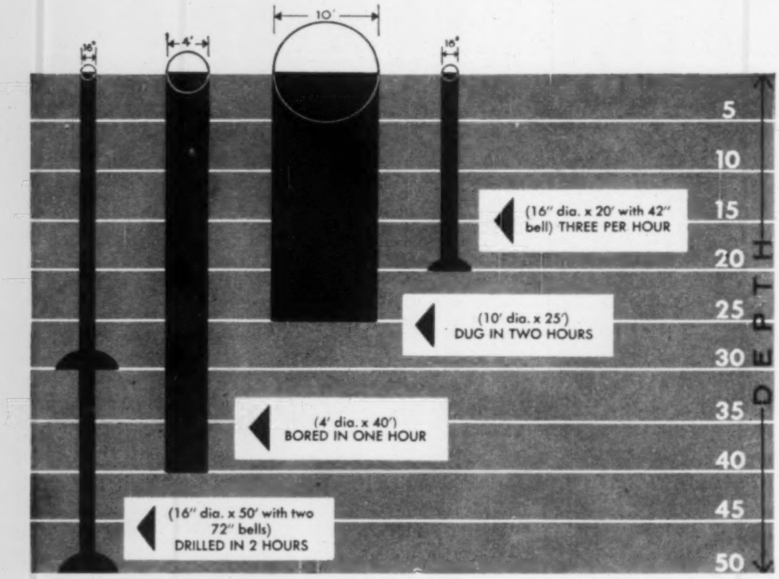
Calweld digs holes of all sizes!


10'
4'
16"
16"
5
10
15
20
25
30
35
40
45
50
DEPTH
(16" dia. x 20' with 42" bell) THREE PER HOUR
(10' dia. x 25') DUG IN TWO HOURS
(4' dia. x 40') BORED IN ONE HOUR
(16" dia. x 50' with two 72" bells) DRILLED IN 2 HOURS

Handles 1½ yards per pass

Here's digging speed and excavating capacity to handle hundreds of construction jobs. That's why more and more contractors have accepted Calweld bucket type drills as the fastest and most economical method of pre-boring driven piles, foundations, excavation shoring, manholes, cesspools, soil testing, mineral explorations and many other digging jobs. Calwelds travel to the job fast . . . dig clean precision holes fast . . . work in confined areas. Write for the new 16-page "Methods Manual for General Contractors and Excavators."

MOBILE AND MANEUVERABLE BORES 1' TO 10' HOLES 200 FEET DEEP

CALWELD DRILLS

Calweld, Inc. 7222 E. Slauson Ave., Los Angeles, Calif.

Publications

Drainage—Fabricators of corrugated steel riveted culvert pipe, as well as designers and contractors who must plan and execute installations where drainage and loading problems are encountered, will find useful the second edition of Bethlehem's booklet, "Solving Drainage Problems." It contains descriptive information, charts and data, as well as new tables for the evaluation of flow friction that will simplify planning and design under most conditions. 76 page illustrated brochure. BETHLEHEM STEEL CO., BETHLEHEM, PA.

Tractor shovels—Specification bulletins describing equipment's features. Following models covered: Model LHM-75, Model 104, Model 154, Model 404. 2 page bulletin. YALE & TOWNE MANUFACTURING CO., CONTRACTORS MACHINERY DIV., BATAVIA, N. Y.

Dock-ramp—Describes features of fully-automatic ramp. 4 page brochure "Rotary Automatic Dock Ramp." ROTARY LIFE CO., DEPT. L, 1054 KANSAS ST., MEMPHIS 6, TENN.

Belt conveyors—Application of Model 375 "Transfer Conveyor" to cover uses in asphalt mixing, plants, aggregate installations, industrial operations and others. 8 page Bulletin No. 375. BARBER-GREENE CO., 400 N. HIGHLAND AVE., AURORA, ILL.

Tractors—Detail of engineering improvements made to the D-8 Caterpillar. 4 page booklet titled "Four Years of Improvements in the Caterpillar D-8 Tractor" (Form No. 33178). ADVERTISING DIV., CATERPILLAR TRACTOR CO., PEORIA, ILL.

Gas engines—Details a line of 4 cycle, V-angle gas engines, designed for supplying power to industry. Three models described: PJVG, PSVG and FKVG. Horsepowers range from 220 to 1760. 4 page booklets (Form 10051, 10052 and 10053). INGERSOLL-RAND CO., 11 BROADWAY, NEW YORK 4, N. Y.

Compaction equipment—General roller circular describing new equipment manufactured. SHOVEL SUPPLY CO., P. O. Box 1369, DALLAS 21, TEXAS.

Material handling—Ideas in design and application that are said to help speed production and solve specific handling problems. Description of latest equipment. 16 page catalog, No. 90. UNION METAL MANUFACTURING CO., CANTON 5, OHIO.

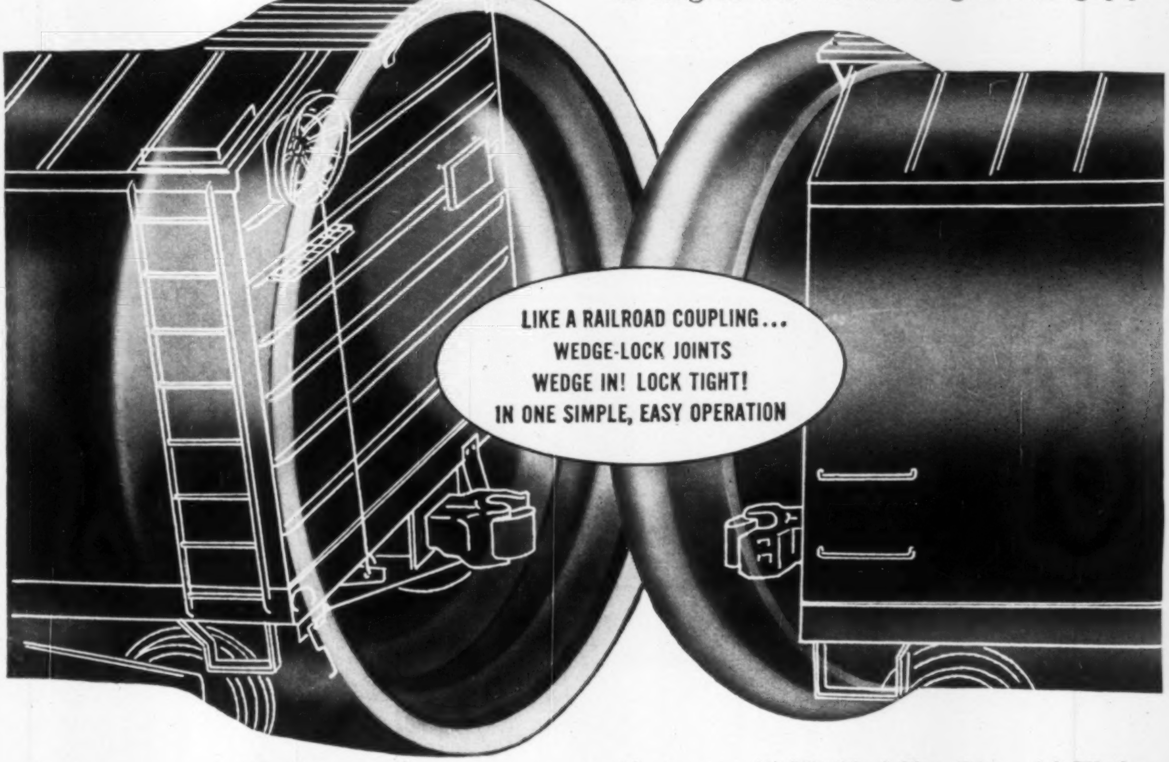
(*Publications continued page 64*)

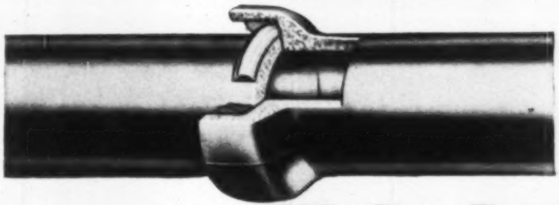
NEW **Wedge-Lock*** JOINTS

WEDGE IN!
LOCK TIGHT!

Stop Infiltration and Roots

Patented Wedge-Lock Joints wedge in and lock tight in one simple, easy operation . . . in continuous compression . . . provide the tightest line . . . stop infiltration and root penetration . . . give easier, faster installation . . . keep installation costs down . . . permit strict adherence to engineered sewer designs . . . last as long as the world's longest-lasting pipe.


LIKE A RAILROAD COUPLING...
WEDGE-LOCK JOINTS
WEDGE IN! LOCK TIGHT!
IN ONE SIMPLE, EASY OPERATION



Always specify Vitrified Clay Pipe with Wedge-Lock Plastisol Joints.

Write to Listed Manufacturers for literature or an actual Wedge-Lock demonstration.

*Patented. T.M. Reg. U.S. Pat. Off.

Wedge-Lock CLAY PIPE

THE FACTORY-JOINTED CLAY PIPE AVAILABLE NATIONALLY FROM LOCAL MANUFACTURERS

Order Wedge-Lock from any of these Vitrified Clay Pipe Manufacturers:

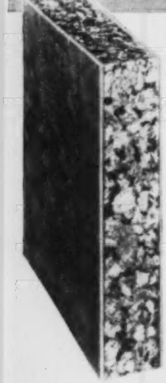
Cannelton Sewer Pipe Company, Cannelton, Ind.
The Evans Pipe Company, Uhrichsville, O.
The Logan Clay Products Company, Logan, Ohio
Pacific Clay Products, Los Angeles 54, Calif.
Pomona Terra-Cotta Company, Greensboro, N.C.
Graff-Kittanning Clay Products, Worthington, Pa.
Clay City Pipe Company, Uhrichsville, Ohio
Gladding, McBean & Company, Los Angeles 54, Calif. *(Sold under trade name,"SPEED-SEAL")*
Oconee Clay Products Company, Milledgeville, Ga.
Pine Hall Brick & Pipe Company, Winston-Salem, N.C.
The Robinson Clay Product Company, Akron 9, Ohio
Superior Clay Corporation, Uhrichsville, Ohio
The Stillwater Clay Products Company, Cleveland 16, Ohio

SERVICISED

JOINT FILLERS

for Concrete Paving

Three widely used Servicised Premolded Joint Fillers are briefly described below. Complete details, specifications and samples of any particular type or types are available on request.



KORK-PAK®

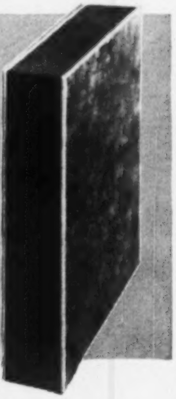
An exclusive Servicised development KORK-PAK consists of asphalt and granulated cork formed between two sheets of asphalt saturated paper.

advantages

1. It is non-extruding
2. Recovers more than 80% of original thickness after compression
3. Low moisture absorption
4. Readily handled without breakage
5. Least expensive non-extruding type

recommended uses A general purpose joint filler, particularly for highway work where the top of the joint can be thoroughly sealed with Para-Plastic.

ASPHALT



A composition of asphalt, vegetable fibre and a small percentage of finely divided mineral filler, formed between two sheets of asphalt saturated paper.

advantages

1. Forms an easily compressible cushion
2. Is highly waterproof
3. Low in cost

recommended uses For interior concrete floor construction where black color is not objectionable, and most extensively in the formation of contraction joints in concrete construction where a ¼" or ⅜" thickness is often used.

FIBER

Cane Fiber Joint Filler is a non-extruding, resilient bituminous material consisting of cellular cane fibers securely bound together and uniformly saturated with a suitable bituminous binder.

advantages

1. It is non-extruding
2. Ordinary carpenter saw can be used for cutting
3. Lowest cost non-extruding type
4. Recovers more than 70% of original thickness after compression

recommended uses

An all-purpose joint filler extensively used for highway work where the upper portion of the joint can be thoroughly sealed with Para-Plastic Bituminous Rubber sealing compound. The complete line of Servicised Joint Fillers is described in the Servicised Catalog. Write for your copy.

SERVICISED PRODUCTS
CORPORATION
6051 WEST 65th STREET • CHICAGO 38, ILLINOIS

Dredging—Land reclamation by hydraulic dredging for real estate development. 20 page bulletin (No. 937), "Turning Swamps Into Dollars." Ellicott Machine Corp., 1611 Bush St., Baltimore 30, Md.

Calcium chloride — Recommendations for treating abrasives to provide safe roads and control ice problems during winter, in Manual IM-1, "Calcium Chloride for Ice Control", a 30 page illustrated text. Also, recommendations for maintenance of unpaved roads in a 36 page illustrated booklet titled "Maintenance Tips for Unpaved Roads." Calcium Chloride Institute, 909 Ring Building, Washington 6, D. C.

Rotary drills—Details of operations of Model M8 Rotary Drills. 16 mm sound film, in color. Running time 20 minutes. Davey Compressor Co., Kent, Ohio.

Air compressor—Description of self-propelled air compressor Model 250 Standard Pneumatractor. Available with either gas or diesel power. Bulletin TFP-57. Schramm, Inc., 900 E. Virginia Ave., West Chester, Pa.

Retaining walls—Description, installation rules, technical data and engineering applications of Bin-Type retaining walls. 16 page catalog. No. RW-3558. Armco Drainage & Metal Products, Inc., Middletown, Ohio.

Wire rope splicing—Description and illustration of splicing techniques, covering eye splices, end splices, grommets etc. Also a notebook of wire rope constructions and specifications is contained. A 38 page handbook. Union Wire Rope Corp., 2228 Manchester Ave., Kansas City 26, Mo.

Tower lift—Engineering techniques used to lift and position the 450 ton Texas Tower radar platform now in place in the Atlantic. A 10 minute color film with sound track. Construction Department, M. W. Kellogg Co., 711 Third Ave., New York 17, N. Y.

Computers—Comprehensive summary of the many highway engineering calculations that have been programmed for the Univac 120 electronic digital computer. Report U-1419. 30 pages. Remington-Rand Univac, 315 Fourth Ave., New York 10, N. Y.

Moving sidewalks—Description of three types of passenger conveyors manufactured by the company. 8 page booklet. Hewitt-Robins Inc., Stamford, Conn.

Look ahead*...move ahead...*and stay ahead

...with Allis-Chalmers motor graders

preferred by more operators... bought by more users every day

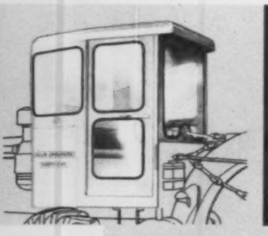
Matching motor graders to job needs efficiently and economically is more important today than ever before. That's why cost-conscious owners in every part of the country are choosing Allis-Chalmers. And their operators approve that choice because these motor graders combine top performance with real comfort and handling ease. Whether you're interested in production or utility, take a close look at the advantages these increasingly popular machines offer you.

For consistently tough work, we invite you to compare with any other heavy-duty motor grader

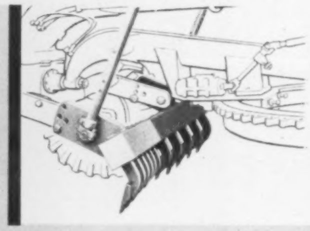
The FORTY FIVE has the power, weight, traction and speeds you need for high-production grading. Superior stability and precision control give you deep precision cuts or smooth finishes. The FORTY FIVE is built to take the shocks and strains of heavy-duty service—and to keep production steady.

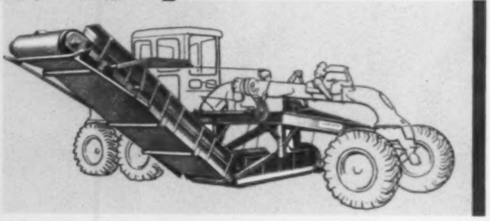
Matched attachments and accessories make the FORTY FIVE a year-round producer on scores of jobs.

All-steel stand-up cab

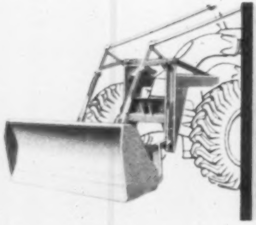


11-tooth, V-type scarifier

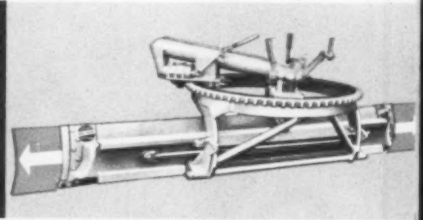




Hancock elevator



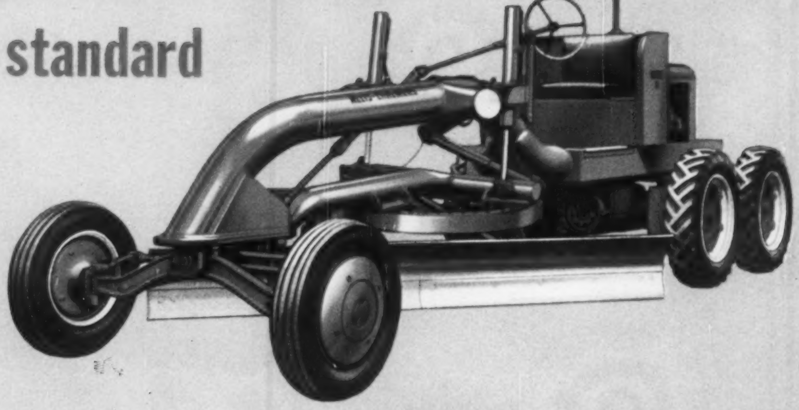
8-foot bulldozer

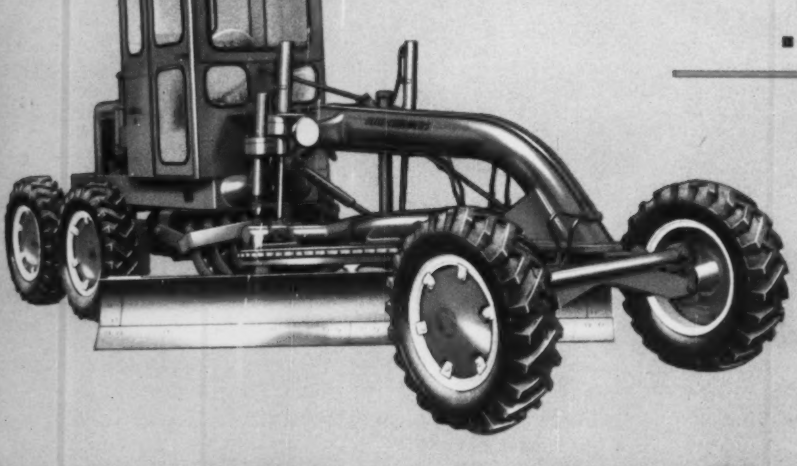


Hydraulic, shiftable moldboard

model D standard

50 brake hp
8,800 lb (gasoline)
9,350 lb (diesel)





...for big economy on

model D special

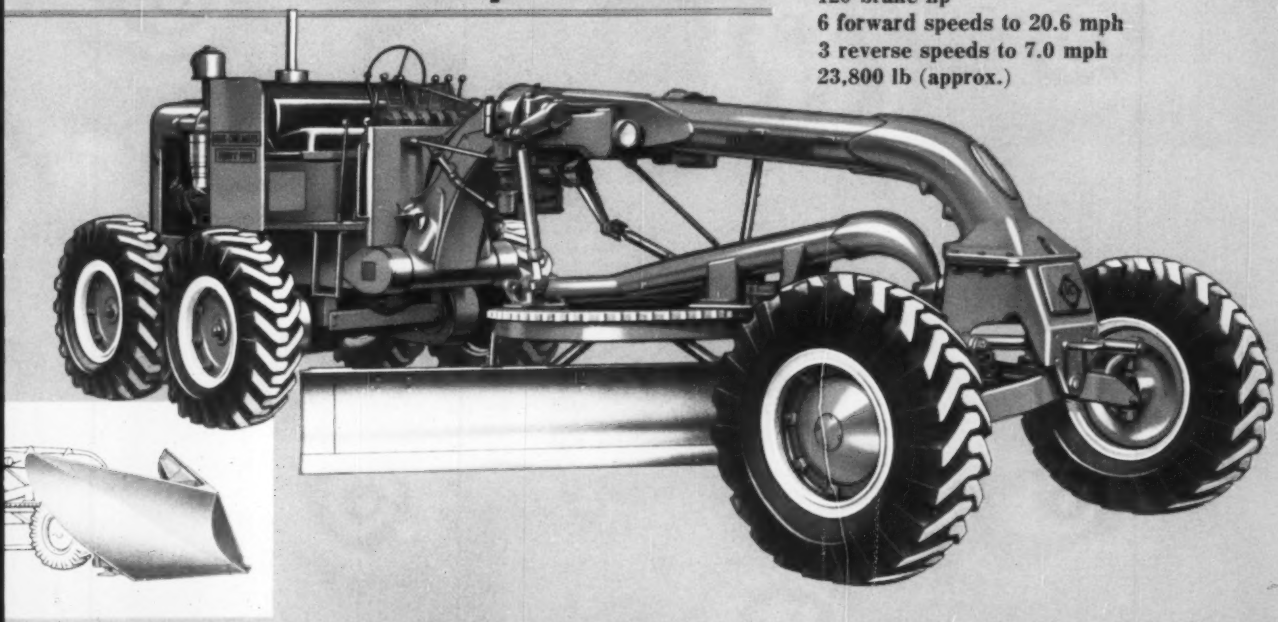
50 brake hp
10,900 lb (gasoline)
11,450 lb (diesel)
4 forward speeds
to 25 mph (approx.)
1 reverse speed
to 3 mph (approx.)
All-steel cab*

Shiftable moldboard*
Hydraulic scarifier*
Leaning front wheels*
Power circle turn*

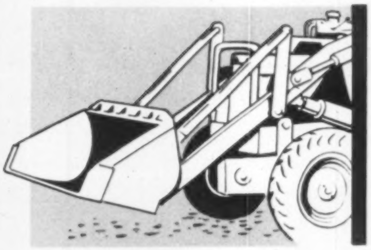
Also available with the Model D Standard as optional equipment.

FORTY FIVE performance

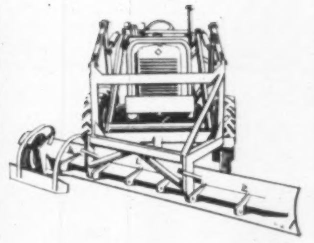
120 brake hp
6 forward speeds to 20.6 mph
3 reverse speeds to 7.0 mph
23,800 lb (approx.)



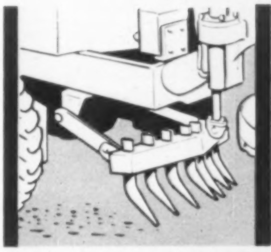
V-type snowplow



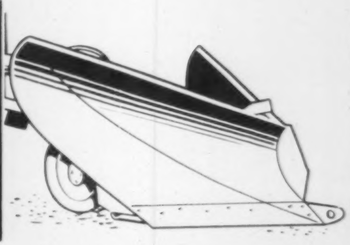
5/8-yd, rear-mounted loader



Interchangeable shoulder maintainer



Midship-mounted scarifier



Blade and V-type snowplows

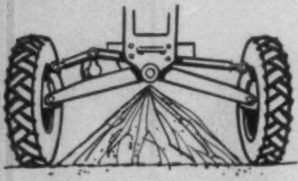
maintenance and construction work get the model D

Here's the original low-cost motor grader with big-grader design and performance advantages. It can be yours at one-third the cost of a large grader. The Model D handles so many jobs so well, you have to see it at work to convince yourself.

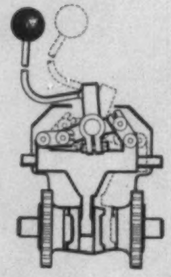
SEE MORE...ALLIS-CHALMERS ENGINEERING IN ACTION

See these big advantages of Allis-Chalmers motor graders in a working demonstration

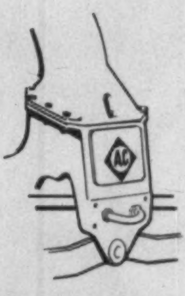
FORTY FIVE



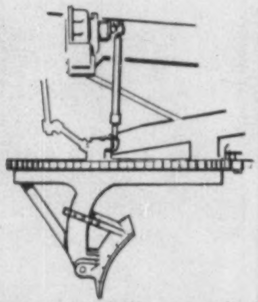
Extra high axle and throat clearance means bigger loads at the blade . . . no power wasted pushing material with axle or circle.



Toggle-type controls are exclusive with Allis-Chalmers. Controls engage or release clutches surely, quickly, without wrist-snapping backlash.

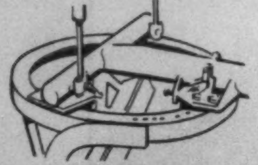


Fully enclosed power steering—full, easy control under any conditions. Hydraulic unit and lines are inside the frame . . . protected from damage.

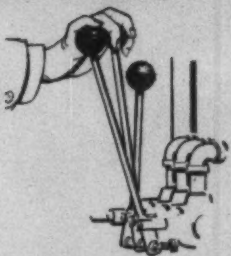


Front-mounted lift cases eliminate long shafts that twist under heavy loads. Short shafts hold blade steady even on washboard roads.

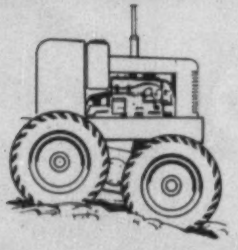
Model D



Revolving circle and heavy tubular drawbar provide exceptionally stable mounting for the ROLL-AWAY moldboard . . . assure precision grading, trouble-free operation.

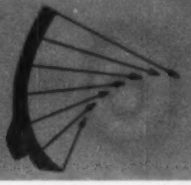


Convenient hydraulic controls—easy to operate. Two levers fit into one hand to control circle lift. Shift lever is next to the seat and directly over the transmission for positive, easy shifting.



Positive tandem drive gives you four driving wheels under the heavy end of the grader . . . providing maximum traction at all times to make the Model D easier riding, smoother blading.

And in both, the exclusive ROLL-AWAY moldboard



The ROLL-AWAY moldboard rolls dirt up and ahead to eliminate packing, reducing friction . . . gives you more performance per horsepower, more production per gallon of fuel.

ROLL-AWAY is an Allis-Chalmers trademark.

Look ahead...*move ahead*...and stay ahead

ALLIS-CHALMERS, CONSTRUCTION MACHINERY DIVISION, MILWAUKEE 1, WISCONSIN

ALLIS-CHALMERS

Form MS-1304

Litho. in U. S. A.

Men and Jobs

Specs Men Seat Officers, Decide To Seek Director

J. Stewart Stein, Chicago architect, was installed as president of the Construction Specifications Institute at the recent annual meeting of the organization in Cleveland. He had been serving in the post since the death of J. Norman Hunter, CSI president, a few months ago.

Willard H. Barrows, New York City architect and specifications consultant, moved into the vice-presidential spot vacated by Mr. Stein.

The 300 CSI members attending also voted to hire a full-time executive director. This top administrative job will go to a technical man versed in specifications—probably an architect or engineer—by early fall, according to a CSI spokesman. The director's office will be at national headquarters in Washington, D. C.

Careers

Business

William T. Collings and **Emil F. Vranich,** both registered professional engineers, have formed the consulting engineering firm of Collings-Vranich and Associates, Milwaukee, Wis.

Col. Delbert B. Freeman (USA-Ret.) has joined Fruin-Colnon Contracting Co., engineers and constructors, St. Louis, as vice president and director in charge of foreign operations.

Rodney T. Robinson and **Raymond Ziegler,** architects, have been admitted to partnership in the firm of Allison & Rible, architects, Los Angeles.

Paul I. Nichols & Associates has opened engineering offices in Santa Rosa, Calif., and Kailua, Hawaii.

John S. Gregory has been elected chairman of the board, and **Sherwood E. Liles, Jr.,** president, of Tidewater Construction Corp., Norfolk, Va.

Henry C. Murphy, Jr., formerly of E. W. Howell Co., Babylon, N. Y., has been appointed general manager of C. G. Flygare, Inc., New York City building firm.

Graeme K. MacDonald, a contractor in the San Francisco Bay area, has been elected president of Spanall of the Pacific, Inc.

Stanley Kimball, E. R. Ordway and **Sam Ruvkun,** three recently elected vice presidents of Henry J. Kaiser Co., Oakland, Calif., have been assigned to key positions in the company's newly organized Heavy Construction Division. Mr. Kimball will be responsible for the heavy construction activities of the division. Mr. Ordway will handle financial, accounting, procurement, industrial relations, legal and contract administration. Mr. Ruvkun will be responsible for the division's Latin American activities.

George Nelson, formerly executive vice president of Law-Barrow-Agee Laboratories, Inc., Atlanta, has become president of the company, and the firm has been renamed Law Engineering Testing Co. **Thomas C. Law,** founder, will continue as chairman of the board.

Noble W. Herzberg, former vice president of Osborn Engineering Co., Cleveland, has been made executive vice president of the firm. **Ralph E. Scott,** former secretary-treasurer, has been elevated to vice president.

Brig. Gen. B. B. Talley (ret.), **Gerald O'Connor** and **Edwin T. Morris** have been made vice presidents of the Raymond Concrete Pile Co., New York City. The three new positions are a part of the firm's general expansion of its extensive overseas program. General Talley, a former division engineer in the Corps of Engineers, is president of Raymond's Brazilian subsidiary; Mr. O'Connor has concerned himself with the company's Venezuelan subsidiaries; and Mr. Morris has had extensive experience with Raymond's African and Puerto Rican activities.

Roy W. Perry, general contractor at Durham, N. C., and **William C. McDuffie,** office manager for W. E. Baker Construction Co., Durham, have formed a new firm, the Perry-McDuffie Construction Co.

Frank S. Sawyer is appointed manager of construction for J. F. Pritchard and Co., an engineering, design and construction firm of Kansas City, Mo.

Taylor Weinzler is appointed construction manager of the Kulp-Waco Corp's building and construction department, Buffalo, N. Y. He has served with the engineering department of the Pennsylvania Railroad and the Erie County Highway Department.

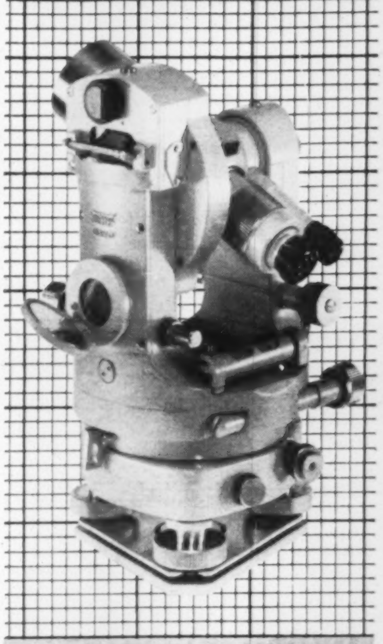
Pearson, Humphries & Jones is a new architectural firm in Montgomery, Ala., teaming up **Charles Humphries, William Pearson** and **Renis O. Jones, Jr.**

William D. Hege has joined the staff of Cornell, Howland, Hayes & Merryfield, consulting engineers, Corvallis, Ore. Until recently he was a partner in the firm of Hege & Houston, consulting engineers, Portland.

Willard W. Lauer has been elected president and treasurer of The Trimble Co., a Pittsburgh contracting firm. Mr. Lauer is a civil engineering graduate of Carnegie Institute of Technology with

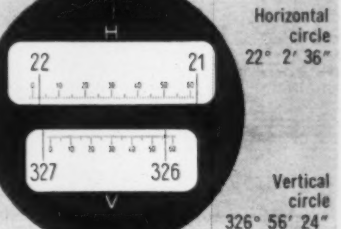
Fennel

UNIVERSAL THEODOLITE FT I



Both circles can be read simultaneously

Readings direct to one minute



Easy estimation to 6 seconds — no vernier computations necessary. Built-in optical plummet. Independent conical centers.

For more information on

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Light-weight Engineer's Theodolite FTS
One-Second Theodolite FT II

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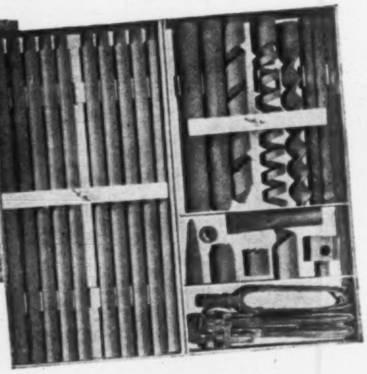
DON'T GUESS!

use an ACKER SOIL SAMPLING KIT for accurate sub-surface information

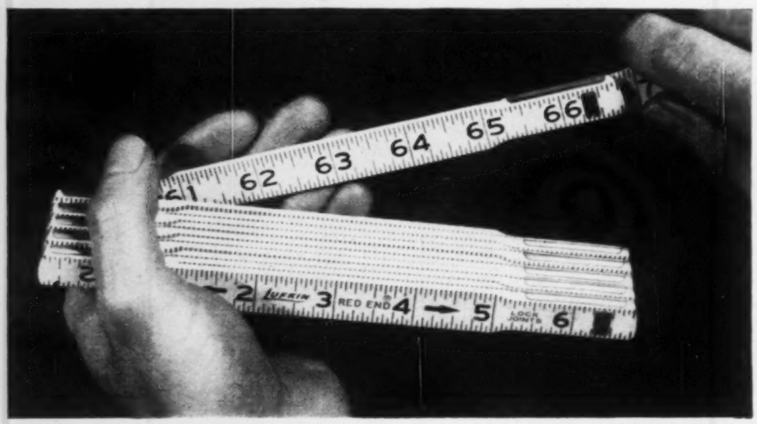
With accurate sub-soil information, *you avoid* costly trouble later on. And, what better way to get this information than with a portable, easy to use Acker Soil Sampling Kit. For here is a versatile collection of twelve soil sampling tools packed in a handy steel kit that can be carried in any car. Write today for prices and Bulletin 26ENR.



Acker Soil Sampling Kit being used for test borings for bridge foundation. Over 30 years of soil sampling experience make this Acker kit the most useful you can buy!

ACKER DRILL CO., Inc. 725 W. Lackawanna Avenue
Scranton, Penna.

a complete line of Diamond and Shot Core Drills, Drilling Accessories and Equipment



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CLICK! It locks like a latch

Open and close any Lufkin Red End . . . and listen to those joints. Click! Click! Click . . . like a well-fitted latch!

Now open it all the way. Pull any two sections. Not a bit of end play, not a trace of sloppiness. Hold it by the center section . . . edge up . . . fully extended. See how the tightly locked joints refuse to fold even when you shake it.

These features are all part of the reason why so many carpenters and craftsmen won't buy any rule but a Lufkin Red End.

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a Masters Degree obtained at the University of Illinois. He formerly was associated with The Rust Engineering Co. and The H. K. Ferguson Co., Cleveland.

Public Works

Lemuel T. Eison has been appointed city engineer of Springfield, Ore., moving from the post of assistant city engineer of Tacoma, Wash.

John M. Peirce, California's Director of Finance, has been appointed general manager of the five-county San Francisco Bay Area Rapid Transit District.

Maj. Joseph A. Bacci has been designated resident engineer for the Remote Facilities Field and Projects Office of the U. S. Army Engineer District, Alaska. In this newly-established position, with headquarters at Anchorage, he will supervise contracts for military construction at isolated sites in the territory.

Leonard E. Leis, Toledo, Ohio, building inspection commissioner, has been named commissioner of engineering and construction, the post that **John H. Davis** left to become commissioner of harbor and bridges.

Robert O. Eisenlohr has been appointed chief deputy county engineer in Dayton, Ohio. He served as county bridge engineer from 1936 through 1942 and more recently was a lieutenant colonel in the Air Force

Honors

Guy Kelcey, partner in the Newark, N. J., firm of Edwards & Kelcey, consulting engineers, received an honorary degree of Doctor of Engineering at Newark College of Engineering's 42nd commencement exercises.

The American Society of Civil Engineers names three to honorary membership, highest honor it accords. They are **A. M. Rawn,** chief engineer and general manager of the Los Angeles County Sanitary District; **Henry John Brunnier,** San Francisco consulting engineer; and **Nathan Washington Dougherty,** Dean Emeritus of the College of Engineering, University of Tennessee.

George H. Miehls, president and chairman of Albert Kahn Associated Architects and Engineers, Detroit, has been chosen by the College of Engineering faculty of Ohio State University to receive its Distinguished Alumnus Award, for outstanding distinction in engineering and allied fields.

Carl W. Keuffel, president of Keuffel & Esser Co., Hoboken, N. J., received an honorary Doctorate of Engineering degree from Stevens Institute of Technology at its annual commencement exercises.

L. S. LeTellier, retired head of the engineering department at The Citadel, is South Carolina's "Engineer of the year." He was named for the honor at the recent South Carolina Society of Professional Engineers' convention.

Harold E. McGregor, Fitchburg, Mass., received the Distinguished Service Award for 1958 awarded by the Mechanical Contractors Association of America, Inc.

Associations

B. W. Blake, vice president of Macomber, Inc., has been elected president of Metal Roof Deck Technical Institute. **E. A. Miller,** manager of Fenestra, Inc., is the out-going president.

Stephen A. Derry has been named executive director of the Iowa Engineering Society, effective July 1.

Harold Bateson has been elected president of the Rhode Island section, American Society of Civil Engineers.

Paul S. Wright, former chief field engineer for the Los Angeles Department of Public Works, has been appointed commercial paving engineer for the Pacific Coast Division, Asphalt Institute.

William Hibberd has been named manager of the Alaska chapter of the Associated General Contractors of America. **Larry Moore,** who held the position since 1950, plans to take advanced studies in labor relations at some Western university.

David G. Chase has been appointed manager-secretary of the Clay Pipe Institute.

Education

Col. Walker W. Milner, U.S. Army Corps of Engineers, has been appointed as associate professor of civil engineering at the University of Missouri.

Russell B. Allen, former professor and acting head of the department of civil engineering, is now assistant dean of the College of Engineering, University of Maryland. **Charles T. G. Looney,** a former associate professor and director of the graduate studies in civil engineering at Yale University, is the new head of the civil engineering department at Maryland.

John A. Logan, professor of civil engineering, has been named chairman of the department of civil engineering at the Northwestern University Technological Institute. He succeeds **Robert B. Banks** who will devote additional time to research at Northwestern. Logan holds undergraduate degrees from the University of Saskatchewan and both masters and doctors degrees in sanitary engineering from Harvard University.

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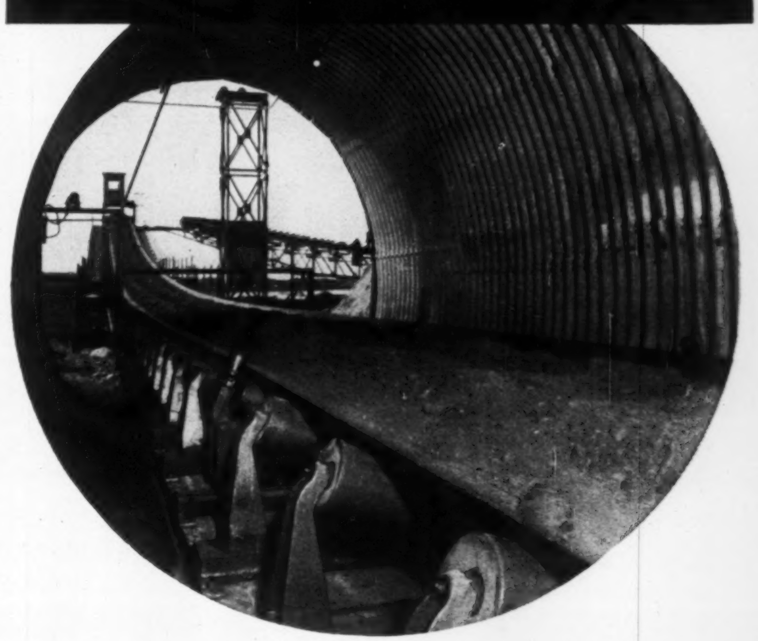

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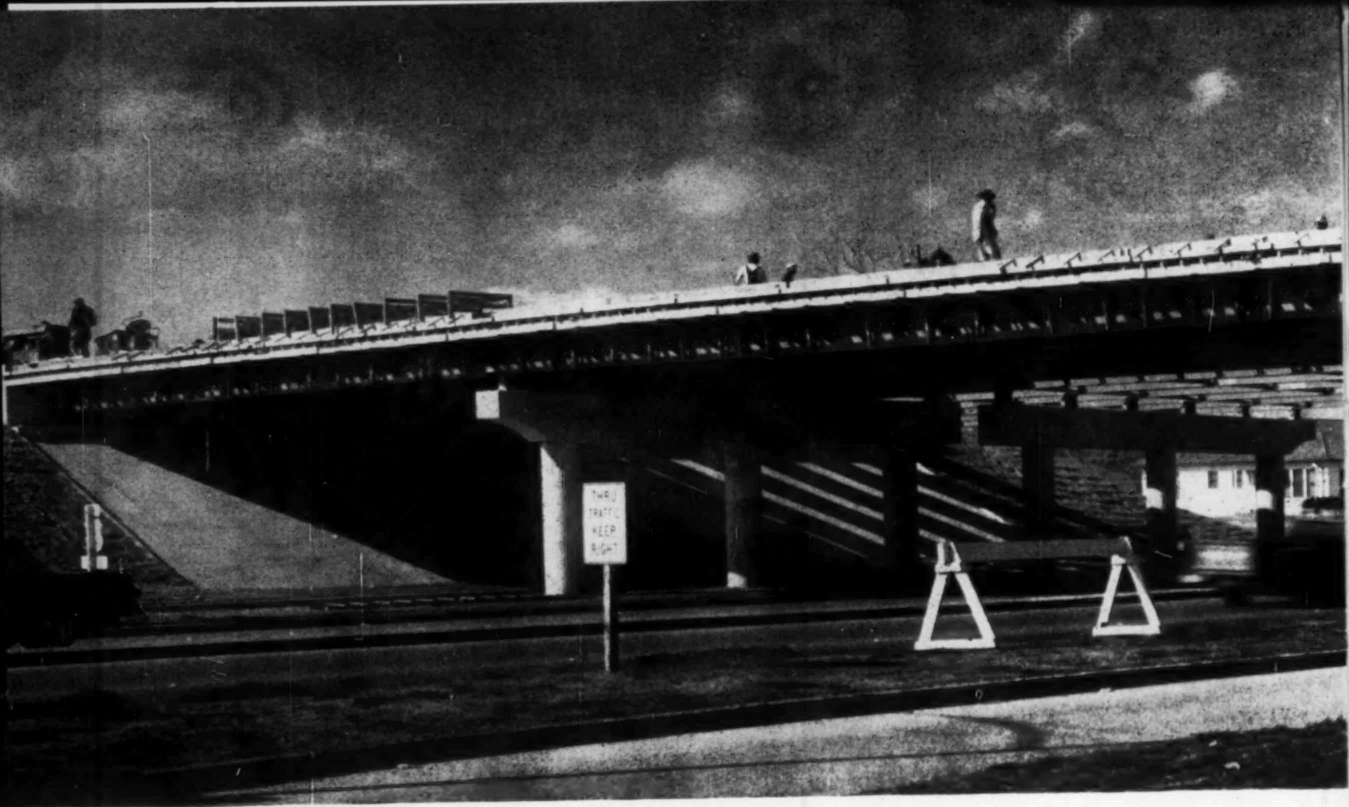
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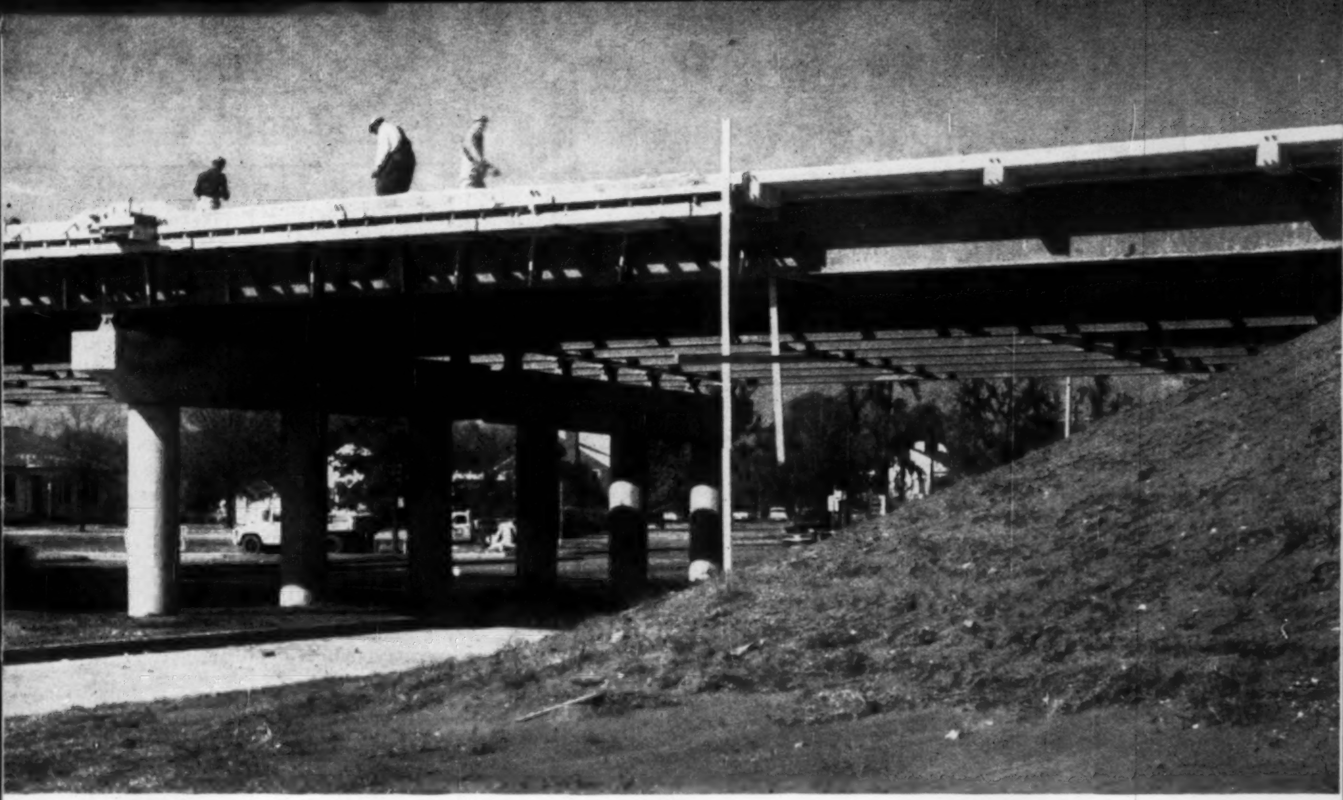

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Because of the obvious advantages of steel bridge construction, it is fortunate U. S. Steel had the foresight years ago to plan greatly expanded facilities to manufacture structural shapes and plates. These facilities are now in production, and more are on the way to meet the swelling demand of the Interstate Highway Program.

In view of these growing facilities, you can confidently design bridges with steel—the material you know the best, the material that offers the most—knowing it will be available when needed.

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The bridge illustrated above was designed by the Texas Highway Department.
Gulf Bitulithic Company, Contractor.

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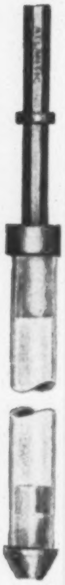

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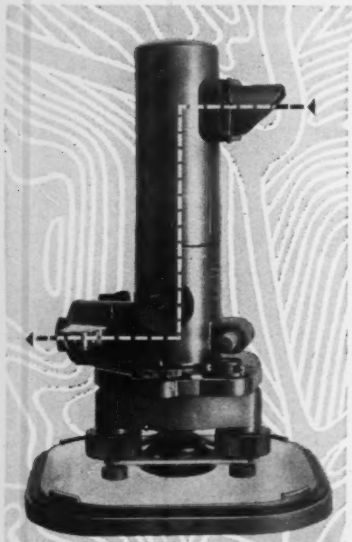

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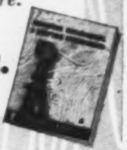

F/S DISTRIBUTORS: The A. Lietz Co., San Francisco and Los Angeles, Calif.—National Blue Print Co., Chicago, Ill.—Watts Instruments, Columbus, Ohio—Geo. F. Muth Co., Inc., Wash., D. C. — CANADA: Instruments 1951 Ltd., Ottawa, Toronto, Regina, Montreal.

Statute of Frauds

Court uses an estoppel to help party injured by oral contract change

When a written contract is modified orally, a party to the contract may be prevented by the Statute of Frauds from enforcing the new agreement. But he may be able to accomplish the same results by asking the court to invoke the doctrine of waiver or estoppel.

In a New York case, a written contract required a subcontractor to furnish, at the election of the general contractor, a performance bond.

The contractor claimed he had asked for the bond without success several times. He then elected to cancel the contract and sued the sub for damages.

As a defense, the sub claimed that the contract had been amended orally and that the general contractor had agreed to obtain the bond for the sub through his own broker. In reliance on this agreement, said the sub, he had not obtained the bond himself and was not required to do so.

The general contractor asked that the defense be dismissed because, under the Statute of Frauds, a written agreement cannot be changed orally. Result, said the contractor, is that the oral change is ineffective and cannot be relied on by the subcontractor.

The court agreed with this legal observation but refused to dismiss the defense. Its reasoning was this:

"Looking at the affidavits, we conclude that there is enough in this record to entitle defendants (subcontractors) to a trial. The facts averred by the defendants indicate that plaintiffs (prime contractors) did inject themselves into the procurance of the performance bond by supplying a broker. If defendants (subcontractors) can establish that the conduct of plaintiffs in dealing with the problem of obtaining the bond was such as to make procurance by defendants impossible, then the resulting default can be laid at the door of plaintiffs. In such case, plaintiffs would be estopped from urging as a default a situation for which they were responsible. Such an estoppel would not be in conflict with Section 33-c, Personal Property Law, since it would not constitute an oral modification of a written contract, but the application of an ancient equitable principle whereby a person whose conduct had induced reliance thereon may not thereafter bring an action which is in-consistent with that conduct. In Imperator Realty Co. v. Tull, 228 N. Y. 447, 127 N. E. 263, which involved an analogous state of facts, since it dealt with a contract that was required to be in writing under the Statute of Frauds, the Court held that, although an oral promise would be ineffective to vary the contract, a plea of estoppel could be advanced. Cardozo, J., there said (228 N. Y. at page 456, 127 N. E. at page 266) 'There may be procurement or encouragement of a departure from literal performance which will forbid the assertion that the departure was wrong.'"

In brief, the appellate court held that while the defense that the written contract has been modified orally could not stand, the subcontractors should be permitted to amend their answer so as to plead that the prime contractor by its conduct had waived the requirement to furnish the bond and by its conduct was estopped from claiming that subcontractor was in default, when such default resulted from the acts of the prime contractor.

(1) Gray v. Met Contracting Corp., 167 N. Y. S. 2d 498, N. Y. Supreme Court, Appellate Division, First Department, Oct. 29, 1957.

The Miller Act Requires A Timely Filing of Claim

The Miller Act requires that a supplier of materials to a subcontractor give notice of his claim to the general contractor within 90 days after the last material is supplied if he wishes protection under the payment bond.

Failure to comply with this requirement defeated a materialman's claim in a recent federal case under these circumstances:

A supplier of material to a subcontractor brought an action against the prime contractor and its sureties for the value of materials supplied to and used by the subcontractor in the erection of a hangar at an air base.

The subcontractor was adjudicated bankrupt and failed to pay the materialman for the materials supplied. On May 9, 1955, the supplier notified the principal contractor in writing of the default in payment by the subcontractor. The last material was delivered to the job on December 17, 1954.

The action brought by the materialman was dismissed on the ground that giving notice of the claim to the prime contractor within 90 days after the last material was supplied was a condition

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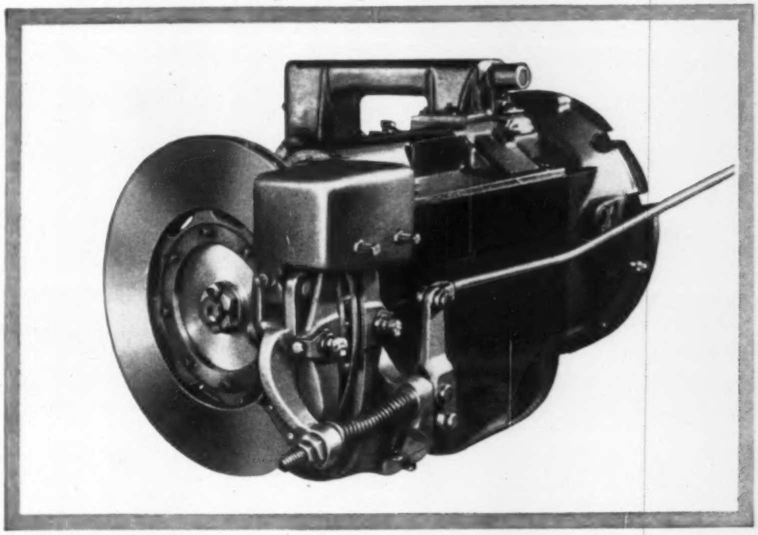

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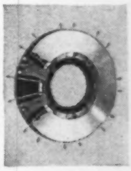

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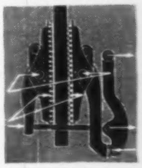

The discs of TRU-STOP brakes are squeezed between the flat surfaces of the shoes. The brake lever operates both the front and rear lever arms simultaneously, and pressure is exerted on the center of each shoe. This puts the entire lining surface in contact, provides for even wear. TRU-STOP brake linings are *easy* to replace.

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precedent to the right of the materialman to have any cause of action against the prime contractor. This judgment was affirmed on appeal.[1]

Section 270b (a) of the Miller Act provides in part: "That any person having direct contractual relationship with a subcontractor but no contractual relationship express or implied with the contractor furnishing said payment bond shall have a right of action upon the said payment bond upon giving written notice to said contractor within 90 days from the date on which such person did or performed the last of the labor or furnished or supplied the last of the material for which such claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the material was furnished or supplied or for whom the labor was done or performed."

(1) Cooley v. Barten & Wood, Inc., 249 F. 2d 912, U. S. Court of Appeals, First Circuit, Dec. 5, 1957.

Court Discusses Validity of Arbitration Awards

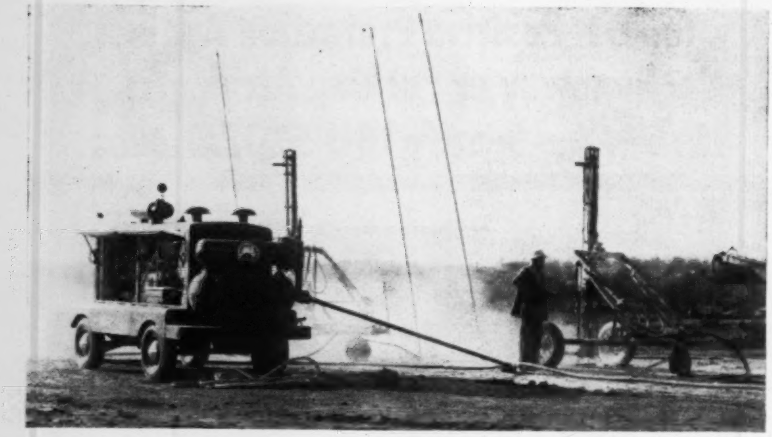
An arbitration award is not easily set aside.

The fact that only one of five arbitrators was a disinterested party in an arbitration proceeding has been ruled by the Supreme Court of Pennsylvania as an insufficient reason for upsetting the award.[1]

"Under the common law," the court observed, "the general rule is that the award is binding unless it can be shown by clear, precise and indubitable evidence that the parties were not given a hearing, or that there was fraud, misconduct, corruption or some other irregularity on the part of the arbitrator which caused him to render an unjust, inequitable and unconscionable award: Reading Tube Corp. v. Steel Workers Federation and Reading Tube Local, 173 Pa. Super. 274, 98 A. 2d 472. Plaintiff (employee) alleges none of the above grounds and attempts to set aside the award in an improper action in which this court finds itself without jurisdiction."

(1) Capecci v. Joseph Capecci, Inc., 139 A. 2d 563, Supreme Court of Pennsylvania, March 17, 1958.

These summaries of court decisions are prepared by I. Vernon Werbin, Esq., New York attorney and licensed professional engineer, who is author of the following books published by McGraw-Hill Book Company, Inc.: *Legal Phases of Construction Contracts; Legal Guide for Contractors, Architects and Engineers;* and *Legal Cases for Contractors, Architects and Engineers.*



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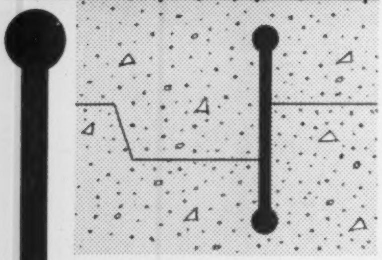

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Books

Estimating Text Updated

Estimating Construction Costs—Second Edition, by R. L. Peurifoy. 446 pp. McGraw-Hill Book Co., Inc., New York, Toronto, London. $10.75.

This is the best of the cost estimating handbooks in recognizing the impact of construction equipment on cost estimating. It deals with the detailed estimate based on quantity take-off and man-hours, priced and extended. And it covers building cost estimating as well as the various types of heavy construction.

This second edition adds 130 pages of new material, including added data on equipment depreciation, bonds and insurance costs. There is also new data on size and make up of crews, labor-hours required per operation or per unit placed for stone masonry, house carpentry, interior finish, mill work, wallboard, lathing, plastering, painting, glass, glazing, roofing, flashing, plumbing, electric wiring.

Like the first edition, the second edition of the volume is well illustrated with examples and liberally supplied with conversion tables, and dimension and quantity tables.

An illustrated estimating form is similar to the usual material-labor-total form, except that it adds a column for equipment.

Structural steel erection rates are shown in crew-hrs per ton, with riveting and welding data. But rates covering new developments in high-strength bolts are not included.

A sample building estimate check list and summary is filled out using the Associated General Contractor's item or work classification code.

A comprehensive list of all types of construction equipment shows a modification of the AGC method of charging off average annual expense as per cent of cost. This includes, for each type, the cost to the owner, the hours used per year and the cost per working hour of ownership and of fuel and other expense.

The wage rates used are national averages in 1956 without any allowance for fringe benefits. Prices shown appear to be at 1956 levels, where they are dated—although the preface says "revisions bring values into line with current costs for 1957."

The reader is pretty much on his own in determining cost dates. Prices illustrated are not dated, for the most part. And no procedure is recommended for updating them as a cross check on results for the reader who wants to ap-

(Books continued page 78)

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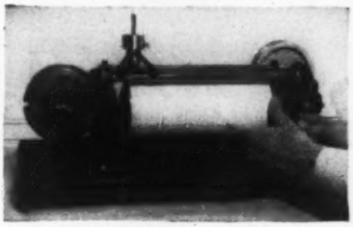

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Reports and Pamphlets

• **Engineering translations**—English translations of leading foreign articles in the field of plastics science and engineering will appear regularly in a supplement to *Kunstoffe*, a German plastics journal, beginning with the July issue. Subscriptions for the expanded magazine are $32.00 annually and may be obtained from Carl Hanser, Zeitschriftenverlag GMBH, Munich 27, Germany.

• **Roadbuilding specifications**—A revised edition of the Colorado State Department of Highways standard specifications is being published on April 1. The complete rewriting of the manual emphasizes the responsibility of the contractor in equipment selection. The new booklet continues to stress the policy of specifying materials and end results rather than details of construction procedure.

• **Paving materials**—A special technical publication discussing road and paving materials is available in 82 page hard cover form. The book is a compilation of five technicals presented in Los Angeles in September, 1956. The papers discuss testing methods, evaluation of asphalts, and the effects of shape and roughness on strength of granular materials. Extensive illustrations and references are included. Available for $2.75 from American Society for Testing Materials Headquarters, 1916 Race St., Philadelphia 3, Pa.

• **Cellular cofferdams** — A report on steel sheetpiling cofferdams has been prepared as Volume I of TVA's Technical Monograph No. 75—Construction Plant for TVA Projects. It covers in detail the planning, design, construction and removal of major steel sheetpiling cofferdams on the Tennessee River. It discusses cell arrangements and presents actual design examples and tests, details of construction, and removal techniques. The design data were developed by TVA's Construction Plant Branch to fulfill the need for concise information not available from other sources. This 281 page volume is entitled "Steel Sheet Piling Cellular Cofferdams On Rock," and is available from the Tennessee Valley Authority Treasurer's Office, Knoxville, Tenn. for $2.50.

• **Construction specifications**—The Montana State Highway Department has revised its book of construction spe-

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cifications for the first time in 12 years. The 503 page pocket-size book includes specifications for use of soil cement, prestressed concrete, construction of irrigation facilities and maintenance of planted rights-of-way and median strips. Copies have been mailed to qualified contractors and other interested persons.

• **Moisture meters**—A report released by the U. S. Army Engineers covers tests of three commercially available moisture meters. It is the result of lab tests and field evaluation of the instruments' ability to indicate accurately and instantly the percentage of surface moisture in sand. Copies of the report, "Evaluation of Electric Meters for Determinating Moisture Content of Fine Aggregate", are 50 cents each from the Director, U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.

• **Mixer and pump standards**—The Associated General Contractors of America has announced publication of the 23rd revision of its Concrete Mixer Standards and the 11th revision of its Contractors Pump Standards. Copies may be obtained from The Associated General Contractors of America, Inc., Washington 4, D. C.

• **Water film offered**—The Bureau of Reclamation has available a 28 minute, 16 mm sound-color documentary film titled "By Their Deeds" for free showings to technically-minded audiences. The film concerns engineering aspects of water resource development, and covers planning, designing, building and operating dams, canals, tunnels and power plants. Prints may be obtained on loan from the Commissioner of Reclamation, Att: 140, Interior Building, Washington, D. C.

• **Illinois water quality** is reported in a pamphlet entitled "Quality of Surface Waters in Illinois" produced by the Illinois State Water Survey. Samples from 19 streams over a 10 year period are related to the soils found in the watersheds of the streams studied. The report may be obtained from the Department of Registration and Education, Springfield, Ill.

• **Research laboratories**—"Merely spending money on research does not automatically open the door to profits." This theme is carried through a 52 page booklet covering planning, design and construction of modern industrial research labs. The booklet is available from Wigton-Abbott Corp., 1225 South Ave., Plainfield, N. J.

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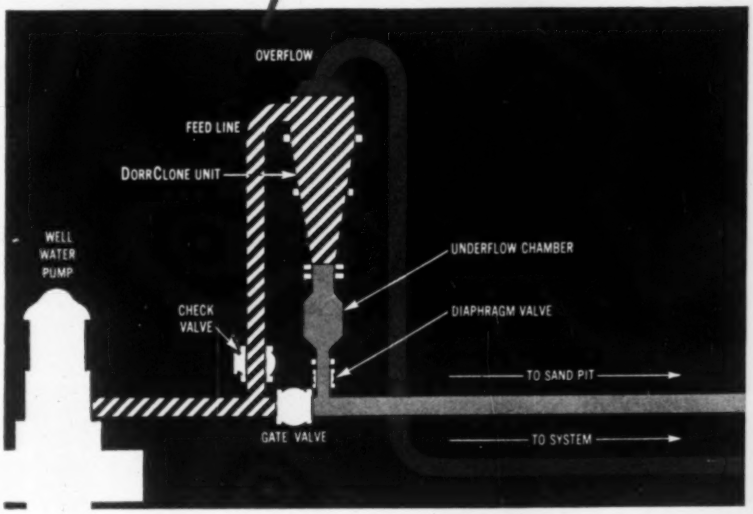

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Heart of the system is the DorrClone unit, a cylindroconical shell, shown diagrammatically above. In operation, raw feed water enters tangentially under pressure at the top. A vortex action is created, throwing sand particles to the walls of the cone and down to the underflow at the bottom. Sand-free water at the center of the vortex flows out the top to storage, a treatment plant, or directly to the mains.

Units may be designed to suit practically all well water systems. For full information, write for a copy of Bulletin No. 2507.

DorrClone, T.M. Reg. U.S. Pat. Off.

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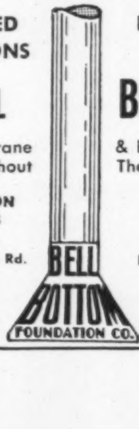
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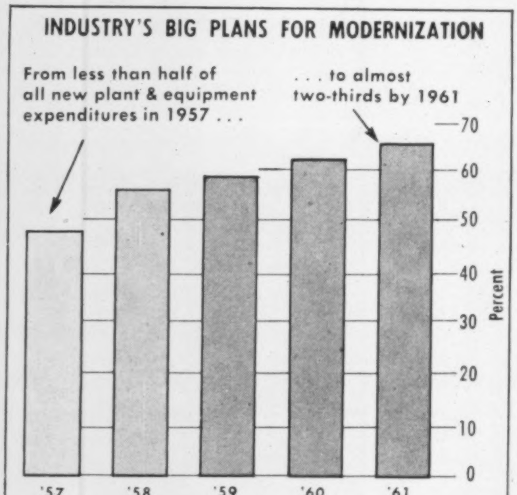
PLAN '59

A MESSAGE TO AMERICAN INDUSTRY

Modernize Now – For Growth and Profits

The biggest challenge facing American industry today is that of thoroughly modernizing its plant and equipment. This is the test period for companies to prepare for success — or failure — in the '60s. Success depends decisively on one key policy — modernization, for growth and profits.


INDUSTRY'S BIG PLANS FOR MODERNIZATION

From less than half of all new plant & equipment expenditures in 1957 . . .

. . . to almost two-thirds by 1961

Data from *Business' Plans for New Plants and Equipment, 1958-1961*, a survey by McGraw-Hill Dept. of Economics

The problem of business recession is fading. Sales and industrial production are moving up again, slowly. Business is swinging back into its normal course. This is growth, not retreat and recession. If the recovery takes us back to the normal growth trend, industrial production will be up 15% to 20% by 1960.

But how can we get this growth in production without the plague of price inflation that has blighted our economy in recent years? And, of fateful consequence for the individual business firm, how can it keep its costs down enough to make a decent profit — something a very large share of American companies are not doing today?

This is the new challenge that confronts business as the recession is left behind.

Nature of the Challenge

The recent record on costs and productivity is not reassuring. Since 1947 wages in manufacturing have risen 68%, while output per manhour has gone up 32%. This is a dismal record for a nation that has prided itself on gains in industrial efficiency. Clearly, if we are to avoid continuing inflation, labor must key its wage demands more closely to productivity increases. But clearly, also, we must do far better in raising output per manhour. Otherwise, industry cannot hope to offer stable prices, and still make a profit.

What, then, is the answer? It is modernization of plant and equipment, the replacement of obsolete producing facilities with new and more efficient machinery and buildings. Only in this way can industry hope to increase production, hold down costs and make a good profit showing in the years of growth that lie ahead.

Industry's Answer

The chart on the preceding page shows how American industry is buckling down to the task of modernizing its facilities over the next four years. It is planning to replace old equipment with new machines that will raise output per worker not just 2% or 3% a year, but more like the 5% annual gain in productivity that this nation achieved in the years following World War I.

Since World War II we have had to contend with shortages of capacity and materials that have held back the job of raising productivity. But today the machines and techniques are available. And industry is getting set.

A broad sample of manufacturing companies surveyed by the McGraw-Hill Department of Economics earlier this year reported these plans: **In 1958, expenditures for modernization will rise to 56% of total investment in new facilities — compared to 48% in 1957. And this emphasis will increase until by 1961, expenditures for replacement and modernization account for two-thirds of all capital spending by manufacturing companies.** In dollar terms, manufacturers will spend more on modernization in each of the four years 1958-61 than in any previous year except 1957.

Can It Be Done?

These are big plans. Can they be carried out? Is it too visionary to hope that after a decade of expansion, industry can now find the outlets for huge amounts of capital investment in the area of modernization? The answers are important to business and the nation, because on this new wave of modernization depends our hope of holding down costs and prices, and also the prosperity of the vital capital goods industries — generators of boom and bust in our economy.

To ensure that industry gets the answers, McGraw-Hill's 34 business publications are now starting a coordinated effort — the largest editorial effort in the history of our company — to find, report and publish the opportunities for modernization at a profit, in the fields we serve. These special reports will begin in late September and will run through November, with appropriate coverage for the specific needs of each field. We are proud to share with industry the responsibility for making sure that no opportunity is overlooked in the drive to modernize now for growth and profits.

This message was prepared by the McGraw-Hill Department of Economics as the first step in our company-wide effort to report on opportunities for modernization in industry. The Department is also preparing a longer report, on modernization as a national problem, for publication in October.

Permission is freely extended to newspapers, groups or individuals to quote or reprint all parts of the present text.

Donald C McGraw

PRESIDENT

McGRAW-HILL PUBLISHING COMPANY, INC.

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SWISS-LOK Tubular Building Frames offer these exclusive advantages:

Vastly cut erection time, crane service and labor costs

No welding, cutting, riveting or bolting at the site

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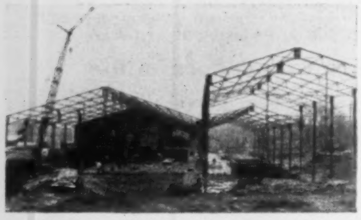

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Unit Prices

Massachusetts Municipal Airport

First stage development, includes terminal building, taxiways, parking aprons, and other site work

The first two contracts let by North Andover, Mass., Joseph L. Paley, Boston, consulting engineer, for development of its municipal airport, total $265,569 for:

Contract	Amount	% of Total
Charles Construction Co., Methuen, Mass.		
Terminal building		
General contract	$52,751	
Sub-bids	81,161	
Total terminal building	$133,912	50.4
L. C. Cyr, Lawrence, Mass.		
Pavement and exterior site work	131,657	49.6
Total	$265,569	100.0

The terminal building will be 40x100 ft, an average of $33.48 per sq ft of area.

Site work includes a 532x250 ft parking apron, two taxiways, 800x50 ft and 550x50 ft, respectively, walks and ramps, sanitary sewer and drainage systems, electric manholes and other work.

Class A concrete is specified 2,500 psi. Cast iron pipe is AWWA, class 150.

Wages prevailing in the area include: tractor operator, $3.50; shovel and crane operator, $3.874; carpenter, $3.25; common laborer, $2.42, all including fringe benefits. Truck drivers are paid $2.394.

The seven bids on the terminal building, all of which include the $81,161 for sub-bids, are:

1C	Charles Constr. Co., Methuen, Mass	$133,912
2	L. C. Cyr, Lawrence, Mass	137,607
7	Welbilt Constr. Co., Methuen, Mass	153,800
EE	Joseph L. Paley, Boston, Mass.	137,000

The four bids on the site work included:

1C	L. C. Cyr, Lawrence, Mass	$131,657
2	Welbilt Constr. Co., Boston, Mass	137,624
4	Del Duco Constr. Co., Methuen, Mass	187,451
EE	Joseph L. Paley, Boston, Mass	140,000

Bids:3-31-58 Items	Unit	Quantity	Unit Prices 1C	 2
Clear & grub	ls	job	$2,480	$1,500
Exc, unclassified	cy	44,000	0.75	0.75
ledge	cy	25	10.00	21.00
Curb, new align	ls	job	2,000	2,120
Subbase crse	cy	3,500	1.45	1.85
Base course, cr aggr	cy	4,000	4.00	4.20
gravel	cy	2,200	1.50	1.85
Prime coat	gal	7,500	0.17	0.20
Bit conc binder course	t	1,320	6.50	7.85
surf course	t	1,320	6.50	7.85
Seal coat	gal	4,400	0.15	0.18
aggr	t	175	4.00	3.20
Bit matl for surf treatment	gal	2,600	0.17	0.20
Cover aggr	t	90	5.00	3.00
Conc walks & ramps	sy	250	3.28	5.32
Sanitary sewer system	ls	job	9,720	11,500
Drain system & bldg drains	ls	job	6,635	10,200
Water supply system	ls	job	1,370	2,250
Fencing	ls	job	1,475	1,250
Flag pole	ls	job	530.00	600.00
Seeding & topsoil	ac	9	2,100	1,050
Conc duct lines & elec MHs	ls	job	9,415	11,900

Commence: 5-26-58. Complete: 11-26-58
Liquidated damages: $50/day

Concrete Replaces Asphalt Deck

Cost of replacing the 8,900 ft of 30-ft wide blacktop highway deck on the Douglas MacArthur Bridge across the Mississippi River between St. Louis, Mo. and East St. Louis, Ill., with concrete slab, will average $4.48 per sq ft. The $1,196,240 contract went to Fruin-Colnan Contracting Co., St. Louis, Mo., on a bid 6% above the engineer's estimate and 1.5% below the second of the six bids.

Work is for the Board of Public Service, St. Louis, Mo., Frank Kriz, president.

C. E. Smith & Co., St. Louis, Mo. are the consultants.

Wages prevailing in St. Louis include: structural iron workers, $3.675; carpenters, $3.585; tractor scraper, $3.675; power crane and shovel operators, $3.675; common laborers, $2.635; truck drivers, $2.725-$2.775.

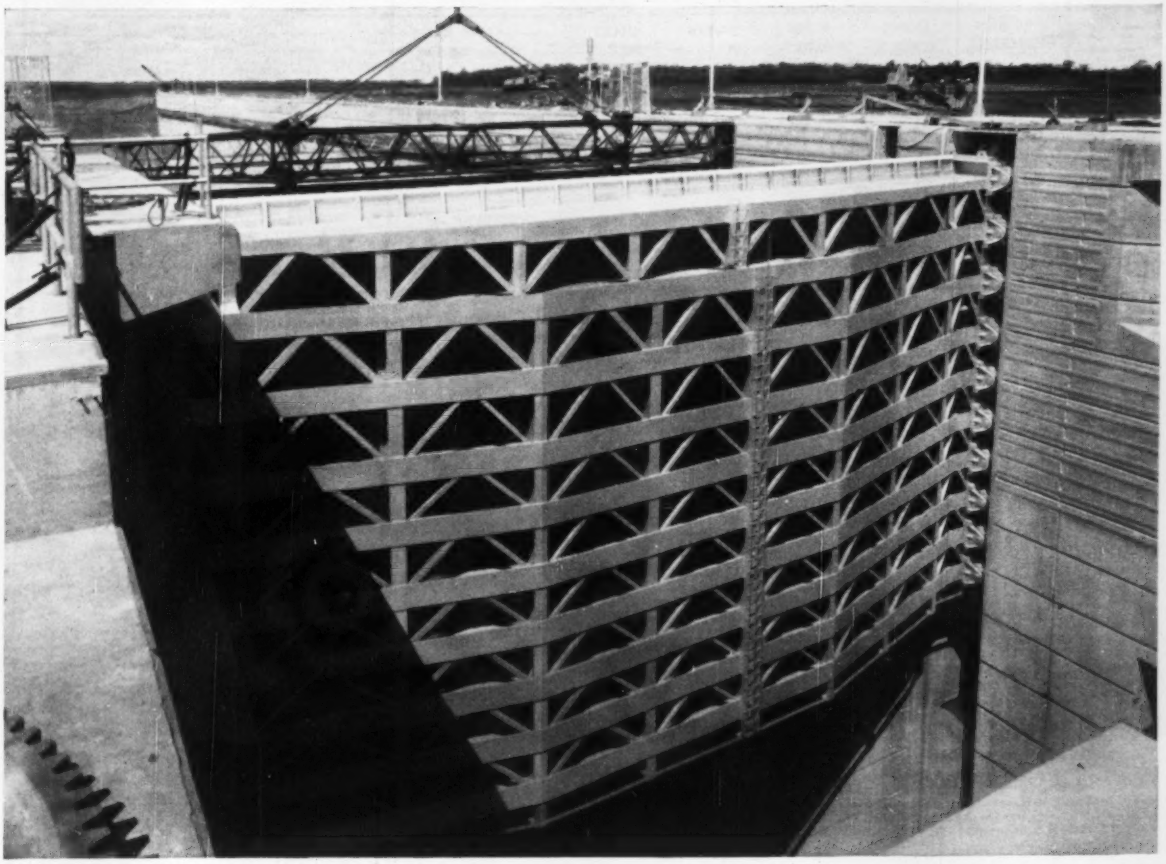
The six bids included:

1C	Fruin-Colnan Contracting Co. St. Louis, Mo	$1,196,240
	J. E. Latta Construction Co. st. Louis, Mo	1,214,111
6	Massman Construction Co. St Louis, Mo	2,018,745
EE	C. D. Smith & Co. St. Louis, Mo	1,130,000

Bids: 4-1-58 Items	Unit	Quantity	Unit Prices 1C	 2
Conc deck & asph pav, remov existing	sf	262,500	$1.00	$1.30
at curves, widened deck, remov asph	sf	2,850	0.17	0.15
treat, chip & bush-hammer, set studs, apply conc glue	sf	2,850	0.42	1.75
in slabs, beams, diaphragm, filler beams	cy	5,540	80.40	82.00
curbs, above slab	cy	185	152.00	138.00
longit constr jts	cy	80	387.00	100.00
Steel, reinf	lb	1,550,000	0.1925	0.165
Weld reinf rods at longit constr jts	lf	17,500	0.985	0.60
Stl. struct, clean & pnt old.	lb	78,300	0.308	0.60
all new, & string bms	ls	job	69,400	48,000
Drainage structs:				
WI downspouts, 6"	lf	435	7.45	14.00
tp A	ea	24	130.00	132.00
B, incl tp B special	ea	33	149.50	125.00
C	ea	50	126.00	98.00
special	ea	1	839.00	123.00

Completion schedule: 280 cal days
Liquidated damages: (excl Sundays & legal holidays) $125/day

STEEL-WELD FABRICATION . . .



LIFT GATES, MITER GATES, TAINTER GATES, and Other Steel Components for Locks, Dams and Power Projects!

Pictured above is a 390-Ton Vertical Lift Gate which was Fabricated and Machined by Mahon. It is one of the heavy steel components in the operating mechanism of the Dwight D. Eisenhower Lock in the St. Lawrence Seaway. The Steel Miter Gates for the Eisenhower Lock were also fabricated and machined by the Mahon Company.

When you need fabricated steel components for Locks, Dams, Highway or Power Projects, you will find in the Mahon Company a unique source for heavy steel plate and structural units in either welded or riveted construction . . . a fully responsible source with a long record of enviable performance, and unusual facilities for fabricating, machining, assembling and handling.

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MAHON

Materials and Labor Prices

Market Quotations by ENR Field Reporters

See following ENR issues for OTHER PRICES:

- Wood Products, Glass, Explosives, Chemicals: Last, Jul. 24; Next, Aug. 21
- Clay Products, Lime, Plaster, Paint, Roofing: Last, Jul. 31; Next, Aug. 28
- Wage Rates, Building Board, Lath, Insulation: Last Jul. 31; Next, Aug. 28
- Cement, Aggregate, Ready-Mixed Concrete, Asphalt: Last, Aug. 7; Next Sep. 4

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES—	PLATE CARBON STEEL	REINF BARS* billet	RIVETS ½-in. structural	SHEET PILING Base	STEEL RAILS Per Net Ton Standard	STEEL RAILS Per Net Ton Light	TRACK SUPPLIES Angle Bars	TRACK SUPPLIES Std Spikes	TRACK SUPPLIES Tie Plates	TRACK SUPPLIES Track Bolts
Birmingham Area	$5.50	$5.30	$5.675	$12.25	......	$110.50	$130.00	$6.975	$9.75	$6.60	......
Chicago Area	5.50	5.30	5.675	12.25	$6.50	110.50	130.00	6.975	9.75	6.60	......
Pittsburgh Area	5.50	5.30	5.675	12.25	6.50	110.50	130.00	6.975	9.75	6.60	$14.75
Buffalo Area	5.50	5.30	5.675	12.25	6.50	110.50	130.00	6.975	9.75	6.60	14.75
Cleveland	......	......	5.675	12.25	6.50	......	......	......	......	......	14.75
Youngstown Area	......	......	5.675	......	......	......	......	......	9.75	......	......
Geneva	5.50	5.30	......	......	......	......	......	......	......	......	......
Los Angeles	6.20	......	6.375	......	6.50	......	......	......	9.75	6.75	......
Pueblo	......	......	......	......	......	......	......	69.75	9.75	6.60	......

* Fairless Works, $5.575.

IRON AND STEEL PRODUCTS—F.O.B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	REINFORCING BARS Per 100 lb., base price 5 tons to carload lot New billet	REINFORCING BARS Rail steel	EXPANDED METAL LATHb Per 100 sq. yd., carload lots Std. diamond mesh. 3.4 lb.	EXPANDED METAL LATHb Std. ribbed 3.4 lb.
Atlanta	$9.05	9.25	$9.01t	$52.00	$57.00
Baltimore	9.45	8.45j	....	42.00	46.50
Birmingham	8.64y	8.60y	8.60y	57.00p	63.00p
Boston	9.63a	8.25	8.25	46.50	51.00
Chicago	8.79E	6.88‡/6.91gu	6.91gu	52.00‡	63.00‡
Cincinnati	9.18ak	9.08rv	....	43.50mn	48.00mn
Cleveland	9.01	6.89c	....	44.50‡	49.00‡
Dallas	9.25	7.75	7.75	44.00	48.50
Denver	9.84	8.95c	....	57.00n	63.00n
Detroit	9.18	7.15g	....	45.00	63.00R
Kansas City	9.31a	8.10	....	49.00	60.00
Los Angeles	8.60fdR	7.35	....	57.00	63.00
Minneapolis	9.08d	9.26b	9.26b	42.50	46.00
Montreal	7.90-8.60iC/8.20-8.90A	7.00/7.50FG	7.00/7.50FG	65.70h	70.20h
New Orleans	....	8.00gks	....	47.00	52.00
New York	9.45‡s	8.35y	8.35y	50.50n	57.00ns
Philadelphia	9.00/9.25	8.03/8.25	....	42.50‡	47.00‡
Pittsburgh	8.64y	7.10y	....	46.00‡w	49.50‡w
St. Louis	9.10s	8.45c	8.45c	61.00l	62.00l
San Francisco	9.50	9.45j	....	51.00	55.00
Seattle	9.80eD	8.85e	....	63.50n	68.00n
Toronto	9.00H	7.85	7.85	46.00nqI	49.00nqJ

Quantity extras; per cwt: under 100#; +$9; 100-399#, +$6; 400-999#, +3.50; 1000-1999#, +1.00; 2000-4999#, base price; 5000-9999#, −10¢; 10,000-19,999#, −30¢; 20,000-29,999#; −50¢; 30,000# and up; −70¢

EXTRAS, per cwt—♦Quantity (applies to LCL shipments only): under 1,000#, +$1.80; 1000-1999#, +$1.50; 2000-4999#, +$1.20; 5000-9999#, +90¢; 10,000-19,999#, +60¢; 20,000-29,999#, +30¢; 30,000-39,999#, +10¢; 40,000# & up, none. ♦Size†: #2 +$2.50; #3 +$1.40; #4 +$1.00; #5 +70¢; #6, #7, #8, #9, #10, #11 +50¢. ♦Bending: heavy, +90¢; light +$2.20 (except in New York City and surrounding metropolitan area where bending must be done on the job). ♦Engineering (details and placing from designs by others): over 500 tons, +45¢; 200-499 tons, +50¢ but not over $4500; 75-199 tons, +65¢ but not over $2000; 20-74 tons, +75¢ but not over $975; 5-19 tons, +85¢ but not over $300; under 5 tons, +$1.00 but not over $85. Min. charge $25. Design only: +60¢.

WELDED FABRIC —REINFORCING—
Per 100 sq ft., carload lots fob mill

4 × 16 in., No. 8 & 10 wires—
Joliet, Ill., Donora, Pa., Monessen, Pa..........$3.98

4 × 12 in., No. 8 & 12 wires—
Joliet, Ill., Donora, Pa., Monessen, Pa..........$3.62

6 × 6 in., No. 6 & 6 wires—
Joliet, Ill., Donora, Pa., Monessen, Pa..........$4:17

*‡ Delivered. ** Aver. of Canadian & American. *a 2000-9999# *b 10,000-15,999#, fob city *c 20 tons or over *d 10,000-29,999# *e Intermediate struct'l *f Incl. delivering in free zone *g CL *h list price; dominion tax exempt; add provincial and municipal taxes *i add dominion, provincial and municipal sales taxes *j intermediate and hard grade *k fob city *l delivered; contractor to do unloading *m copper alloy *n LCL *o asphalt coated *p del. of 500 sq. yd. or more. *q 2.5 lb *r 2% off for cash *s 2,000-4,999# *t add 16.5¢ del. *u add 7.5¢ switch *v incl 15¢ del. *w truck lots. *y add 15¢ del. *z add 10¢ del. *A American made. *C Canadian made. *D ½% for cash. *E 30,000 or over. * F Federal tax exempt. *G add 10¢ switch. *H 8.85 without tariff charges. *I 3 lb $60.00. *J 3 lb $66.00. *R: revised

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE PRICE INDEXa	ASBESTOS CEMENT PIPE per lin. ft. f.o.b. city 6" Press Cl. 150	ASBESTOS CEMENT PIPE 12" Sew Cl. 1500	ASBESTOS CEMENT PIPE 12" Sew Cl. 2400	CLAY SEWER PIPE Per ft., delivered ASTM C13-54 8 in.	CLAY SEWER PIPE ASTM C13-54 12 in.	CLAY SEWER PIPE ASTM C200-55T 24 in.	CLAY SEWER PIPE ASTM C200-55T 36 in.	CLAY DRAIN TILE† Per 1,000 ft., car load lots, f.o.b. ASTM C4-55 6 in.	CLAY DRAIN TILE† 8 in.	CONCRETE SEWER PIPE§ Per ft., delivered ASTMC 14-55 12 in.	CONCRETE SEWER PIPE§ 24 in.
Atlanta	130.5	$1.56/1.64	$2.36	2.68	$.53	$.98	$....	$....	$209.00s	$334.00	$1.55m	$4.40m
Baltimore	140.4	1.56/1.64	2.19	2.54	.665	1.28	5.08r	12.71	187.80	289.20	1.01	2.75m
Birmingham	125.8	1.56/1.64	2.26	2.62	.46	.86	3.70w	10.37w	260.00‡	440.00‡	1.25m	2.75
Boston	143.5	1.58/1.66	2.19	2.54	.784qrt	1.512qrt	6.225qrt	.....	215.40r	330.60r	1.56mg	3.47mg
Chicago	140.9	1.56/1.64	2.19	2.54	.93m	1.78m	7.52m	21.16m	220.00n	330.00n	1.30	4.00
Cincinnati	135.5	1.58/1.66	2.19	2.54	.665t	1.2825t	4.905t	12.505	240.00	370.00	.85m	3.25m
Cleveland	141.7	1.58/1.66	2.19	2.54	.609s	1.1745s	4.995t	12.71t	131.40m	204.60m	.85m	3.50m
Dallas	137.8	1.58/1.66	2.26	2.62	.550	.955	4.40b	9.75b	......	......	1.17	2.52
Denver	148.2	1.79/1.73	2.36	2.68	.48n	.87n	3.73n	.....	......	......	.75m	2.75m
Detroit	142.1	1.58/1.66	2.19	2.54	.90n	1.70n	6.80n	18.50n	182.00m	280.25m	1.10	4.05
Kansas City	138.5	1.60/1.66	2.26	2.62	.61	1.105	5.694b	13.08	278.00	493.00	.95	2.90
Los Angeles	148.6	1.65/1.73	2.19	2.54	.74bl	1.61bl	6.42bl	15.36bl	370.00l	530.00l	1.12	3.32f
Minneapolis	149.9	1.60/1.68	2.26	2.62	.86mo	1.55mo	6.70mo	.....	......	......	2.13h	5.74h
Montreal	.....	....	....	....	1.13u	2.00u	7.00u	13.50u	288.00	545.00	1.17h	3.11j
New Orleans	133.3	1.56/1.64	2.26	2.62	.528	.983	5.21	.....	210.50p	468.00	.85	2.90
New York	138.7	1.58/1.66	2.19	2.54	1.02	1.94	7.58	19.48	......	......	1.50	3.60
Philadelphia	138.0	1.56/1.64	2.19	2.54	.68	1.31	5.13v	14.25v	300.00‡	350.00‡	1.75h	4.20h
Pittsburgh	142.9	1.58/1.66	2.19	2.54	.595m	1.15m	4.73m	12.40m	190.00	295.00	1.66x	3.93x
St. Louis	136.9	1.56/1.64	2.26	2.62	.59	1.08	4.45	10.80	180.00l	380.00l	1.45il	3.10hl
San Francisco	148.6	1.65/1.73	2.19	2.54	.78d	1.69d	6.72d	16.36d	320.00l	560.00l	1.05m	3.30m
Seattle	149.0	1.65/1.73	2.19	2.54	.72b	1.50b	6.84	.....	255.00c	......	1.95ky	4.75ky
Toronto	.....	....	....	....	.80	1.50	6.00	.....	157.00	280.00	.92	3.21

***WROUGHT STEEL PIPE**
(Full-standard weight)
Discount from list; see footnote

Mill	2½ & 3 in., Butt Weld+ Black %	2½ & 3 in., Butt Weld+ Galv. %	3½ to 6 in., Lap Weld+ Black %	3½ to 6 in., Lap Weld+ Galv. %
Lorain, Ohio	16.75	0.50	......	......
Aliquippa, Pa.	16.75	3.00	6.25a	+8.00a
Sparrows Pt., Md.	14.75	1.50	......†	......†
Benwood, W. Va.	16.75	0.50	......	......
Youngstown, O.	16.75	0.50	6.25	+10.50a
Indiana Harbor, Ind.	15.75	0.50	5.25ab	+11.50a
Sharon, Pa.	16.75	0.50	......	......
Wheatland, Pa.	16.75	0.50	6.25a	+10.50a
Etna, Pa.	16.75	3.00	4.50d	+9.75d
Fontana, Calif.	3.25	+13.00	+7.25ab	+24.00ab

+Threaded and coupled. a 3½ to 4 in. b Continuous weld. 5 and 6 in. d 6 in. † Production discontinued

*† Extra quality *‡ delivered. *a PRICE INDEXES for CENTRIFUGAL CAST IRON PIPE (Include carload freight allowed to city). These also serve as the HISTORICAL RECORD of THE $ PER NET TON PRICE of CLASS B, B&S, PIT CAST IRON PIPE. F.O.B. Foundry Price Indexes Birmingham, Ala., 125.8; Burlington, N. J., 134.6. *b Extra strength. *c 4-in., $140. *d SS361-A *f 21 in. *g culvert pipe; reinf., ASTM C 75-56 *h reinf., ASTM C 75-54 *i reinf., ASTM C 76-55 *j centrispun; no standard specs. in Canada. *k 2% cash *l fob plant *m truck del. *n LCL del., fob truck *o listed price based on LCL (no min.) *p freight allowed to destination in city *q ASTM C 13-40 *r CL fob origin, freight allowed *s 1 ft lengths *t 3 ft lengths *u CESA A 60-1941 *v standard strength *w SS; add 20% for d.s. *x fob city *y Reinforced

* **WROUGHT STEEL PIPE:** Deduct discounts shown above from the following standard list consumers carload prices to get mill price. List prices per ft. (*based on approx. $200 per net ton): Butt Weld ⅛ in., 5½¢; ¼ in., 6¢; ⅜ in., 6¢; ½ in., 8½¢; ¾ in., 11½¢; 1 in., 17¢; 1¼ in., 23¢; 1½ in., 27½¢; 2 in., 37¢; 2½ in., 58½¢; 3 in., 76½¢. Lap Weld 3½ in., 92¢; 4 in., $1.09; 5 in., $1.48; 6 in., $1.92. Add freight, 3% transport tax for destination price. † Production discontinued November 1957

WROUGHT IRON PIPE: List prices per ft. same as for wrought steelpipe, but add following "discounts" to get Pittsburgh mill price: Butt Weld—1 in. black, + 65.54, galv., + 95.77; 1¼ in. black, + 65.54, galv. + 95.23, 1½ in. black, + 61.79 galv. + 91.22; Lap Weld—2½ in. to 3 in. black + 67.95 galv. + 95.77; 4½ in. to 6 in. black + 64.74 galv. + 90.68 Add freight rates plus 3% transportation tax to get destination price.

10-million yd airstrip job moves fast for Cook Construction Co.

At site of new U. S. Naval Air Station, big, powerful Adams 660 levels heavy clay fill — makes compaction easier, permits scrapers to spread on-the-run. Says operator James Smith, "This '660' can't be beat for heavy work. It has good visibility and is accurate . . . the best 'blade' I've ever run."

Twenty-four self-propelled scrapers are hauling 10-million yd of sand and clay for construction of a new U. S. Navy Auxiliary Air Station near Meridian, Miss. By following a regular planned road-maintenance program, the contractor—Cook Construction Co., Jackson—keeps these rubber-tired rigs hauling at fastest, most profitable speeds.

Three big, powerful L-W Adams† Model 660 graders are assigned to keep fill area and haul roads in tip-top shape. These speedy, heavy-duty LeTourneau-Westinghouse units work over the important haul arteries . . . leveling ridges, filling-in ruts, and cutting drainage ditches. In the fill area, tough, heavy clay is quickly leveled by the "660's" . . . to make compaction easier and to permit scrapers to spread on-the-run.

L-W 660's get more work done . . . at lowest cost

Cook Construction's L-W 660's have the dependability, "muscle", and high speeds necessary to handle all grader jobs at top efficiency. Available with a 15-speed transmission (including 3 optional creepers), L-W operator easily matches speed to load . . . applies more power to hard digging . . . travels fast job-to-job (26 mph). What's more, L-W grader's 100% engine-to-wheel anti-friction drive assures maximum use of engine horsepower. Result: "660" gets more work done for you in less time, at lowest cost.

Let us give you all the facts on speedy L-W 660, now rated at 160 hp — one of 7 in the 60 to 190-hp LeTourneau-Westinghouse Adams line. Torque-converter drive . . . available on the larger 550 and 660 Adams sizes . . . ensures maximum efficiency and highest output. Ask for your free, illustrated, 24-pg. copy of "GO-power". No obligation.

†Trademark G-1903-DCJ-1

LeTOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

Construction Reports

Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, D. TARTAGLIA, Reports
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION—BA

▲ **Conn., Milford**—BA 8/21—Town, Town Hall., sewage treatment plant, Gulf Point, $1,620,000, Metcalf & Eddy, 1300 Statler Bldg., Boston, Mass., engrs. CD 8/28/56.

BUILDINGS—SLC

▲ **Mass., Medford**—DORMITORIES—Tufts University, Bd. Trustees, Medford, soon lets contract House and Home Finance Agency-Proj. Mass. 19-CH-32 (D) two dormitories. $1,500,000. CD 7/22.

HEAVY CONSTRUCTION—LB & CA

MASSACHUSETTS — Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

M. DeMatteo Constr. Co., 200 Hancock St., Quincy, Mass., CA **$757,800**, est. $805,323, constr. section Mid-Cape Hy. FA Proj. DF-328 (8), Orleans and Eastham. Bids July 15. CD 7/21, under LB.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

J. F. White Contg. Co., P.O. Box 358, Westwood, Mass., CA **$1,555,556**, est. $1,675,370, hy. constr.-relocate Rte. 9, DF-44(7), Cummington and Windsor. Bids July 15. CD 7/17, under LB.

Pacella Brothers, 247 Washington St., Dedham, Mass., CA **$928,357**, est. $1,190,490. storm drainage imprvs. Shrewsbury St. area, Worcester, BOSTON. MASS. Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, Mass. Bids May 6. CD 5/9, under LB.

BUILDINGS—LB & CA

▲ **Town of Bridgeport, Bd. Educ.**, 804 Main St., cancelled bids to have been opened Aug. 5, North End Elem. SCHOOL, Reservoir Ave., BRIDGEPORT, CONN. **$1,000,000.** J. Gerald Phelan, 211 State St., Bridgeport, Conn., archt. Fletcher Thompson, Inc., 211 State St., Bridgeport, Conn., engr. CD 7/10.

▲ **Linus H. Carley**, 200 Knoll Drive, Mount Carmel, Conn. Owner Builds, **$1,400,000**, 60 HOUSES, HAMDEN, CONN. CD 2/28/56.

▲ **Paul B. Zink**, 64 E. Main St., Plainville, Conn., Owner Builds, **$1,600,000**, 80 HOUSES, "Harwood Acres", Harwood Road, PLAINVILLE, CONN. CD 4/16.

▲ **John Zandonella, Inc.**, 70 Chase St., Bridgeport, Conn. CA **$1,316,750**, Regional JUNIOR-SENIOR HIGH SCHOOL, Black Rock Tpk. for towns Easton and Redding, REDDING, CONN. Reg. Bd. Educ., Dist. No. 9, Redding Elementary School, Redding, Conn. Bids July 17, awarded Aug. 1. CD 7/31, under LB.

MIDDLE ATLANTIC

BUILDINGS—BA

▲ **Pa., Harrisburg**—SCHOOLS—BA 8/19—Susquehanna Twp. Auth. 801 Wood St., Progress, Senior High School Bldg. for Susquehanna Twp. School Bd. at 34th and Elmerton Ave. $2,300,000. Plans deposit $100. CD 7/18/51, under Pa., Susquehanna Twp. 8 room elementary school, Locust Lane, Edgemont for Susquehanna Twp. School Bd. $345,737. Plans deposit $50. CD 12/19. W. L. Murray & Assocs., 1600 N. 2nd St., archts.

▲ **Pa., Ebensburg**—SCHOOL—BA 8/27—General State Auth., 18 and Herr Sts., Harrisburg, state school for retarded children $4,000,000. Plans deposit $50. Extended date. C. J. Lappley, Riverview Manor, Harrisburg, archt. A. F. Jones, c/o owner, ch. engr. CD 7/23.

HEAVY CONSTRUCTION—LB & CA

▲ **NEW YORK**—Dpt. P. Wks., The Gov. Alfred E. Smith State Office Bldg., Albany,

Johnson Drake & Piper, 86 Trinity Place, New York 16, N. Y., CA **$5,242,216,** est. $5,643,000 4.17 mi. pavement Rte. 506 (New York State Thruway-Niagara Sec.) City of Buffalo, Erie Co. Bids July 17. CD 7/21, under LB.

▲ **NEW YORK**—State Dpt. P. Wks., The Gov. Alfred E. Smith State Office Bldg., Albany,

Sheridan Constr. Corp., 3580 Sheridan Dr., Buffalo, N. Y., CA **$1,081,209,** reconstr. three Rte. 93 bridges; one in Akron and two north of Akron at Rte. 5 intersection and extending northward; bridges to be reconstr. north of village include one over Murder Creek and one over Tonawanda Creek (county line) Erie and Niagara Counties. Bids June 26. CD 6/30, under LB.

▲ **NEW YORK**—Dpt. P. Wks., State Office Bldg., Albany,

Frank Mascali & Sons, Inc., Flushing, N. Y., CA **$3,883,733,** constr. foundation, ramps and viaduct superstructure for 0.5 mi. long six-lane divided section Harlem River Dr. starting at West 145th St. and extending northwestward in and over Transit Authority Yards to Seventh Ave. 155th St., New York Co. Bids July 5. CD 6/6, under Streets and Roads.

▲ **Vanguard Constr. Co.**, 360 Lexington Ave., New York 17, N. Y. LB **$1,669,146**, Contr. 1 general constr. primary sewage treatment plant **(a)** head house **(b)** two concrete grit removal chambers **(c)** chlorine feed house **(d)** concrete settling basins **(e)** two sludge digester tanks **(f)** 650 ft. concrete pipe interceptor sewer **(g)** all operating equip and facilities **(h)** all related work, BINGHAMTON, N. Y. City, Bd. Contract & Supply, Council Chambers, City Hall, Binghamton, N. Y. Bids July 30. CD 7/14.

Carl Buhr, Inc., Grand Central Terminal, New York, N. Y., CA **$840,850**, control tower, Newark airport, NA 470,002, NEWARK, N. J. Office of Chief Engineer, Port of New York Auth., Room 1100, 111 Eighth Ave., New York 11, N. Y., Bids June 18, CD 5/7.

▲ **PENNSYLVANIA**—Pa. Hy. & Bridge Auth., 506 North Office Bldg., Harrisburg,

Elmhurst Contg. Co., Inc., 53-09 97th Pl., Corona, N. Y. CA **$3,417,047**. est. $5,000,000. constr. 21,700 ft. divided hy. c. conc. 24 ft. wide each side 56 ft. divisor 2 bridges 3 grade separations (Proj. 808-1) FAI section Erie Thruway North East Twp., Erie Co. Bids June 27, Awarded July 31. CD 7/2, under LB.

MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2,

Eugene Chaney, Upper Marlboro, Md., CA **$588,596**, grading, surf. new lane and resurf. portion existing lane 5.283 mi. US 301 south of LaPlata, CH 257-19-520, Charles Co. Bids June 24. CD 7/2, under LB.

Baltimore County Executive, County Office Bldg., Towson 4, Md., rejected bids May 20, Contr. 5811 RX-Goucher Blvd. and Putty Hill Rd., TOWSON, MD. LB **$744,847**. CD 5/28, under LB.

† **Perry & Wallis, Inc.** and **Seal & Co., Inc.**, 917 G. Place N. W., Wash., D. C. CA **$894,908** (joint venture). Items 3, 5, 7, 12 and 16, warning sys. for greater metropolitan area to incl. modification and exten. existing 7 siren type air raid warning sys. as an integral sys. to be remotely controlled by both landline and/or radio and to incl. radio warning network, GS-R3-B-6225, WASH., D. C. General Services Admin., Region 3, 7th and D Sts. S. W., Wash., D. C. H. D. Nottingham & Assoc., Arlington Towers, Arlington, Va., archts. Bids June 25, awarded June 30. CD 6/18.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings **$93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of Interest to American contractors.**

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED
New England
Middle Atlantic
South
Middle West
West of Mississippi
Far West

PROPOSED WORK
Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildings
Industrial Buildings
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.

BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

SOON LETS CONTRACT: SLC

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily Issue in which last previous report was published.

OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over
ENR	Engineering News-Record
CD	Construction Daily

For additional reports see Construction Daily.

BUILDINGS—LB & CA

Caston Assoc., 232-04 147th Ave., Rosedale, N. Y., CA Est. **$800,000**, 50 HOUSES on tract at Kissena Blvd. north of Horace Harding Blvd., FLUSHING, N. Y. Parkside Terrace Homes, c/o contractor.

▲ **New York City Housing Auth.**, 299 Broadway, New York, Zone 7, N. Y., cancelled bids to have been opened July 29, general constr. heating and ventilating, electric work and plumbing for **(A)** Baisley Gardens Houses (Proj. No. NYC-32) Foch Blvd., 157th St., 116th Ave. to 195th St. and New York Blvd. **(B)** Baisley Park Houses (Proj. No. NY 538) in area by Long Island Railroad, Foch Blvd., New York Blvd., to Foch Blvd. in area by 116th Ave., Bedell St., New York Blvd., Foch Blvd. to New York Blvd. and 159th St. **(C)** Baisley Gardens Houses (Proj. No. NYC-32) and Baisley Park Houses (Proj. No. NY-5-38) in areas above described, Queens Boro, JAMAICA, N. Y. CD 7/1.

Buvington Arms, Inc., 1590 Gary St., East Meadow, N. Y., Separate Contracts, **$873,000**. APARTMENT, 175-85 Bennett Ave., NEW YORK, N. Y. CD 6/10.

▲ **Colmar Constr. Co.**, 364 Gold St., Brooklyn 1, N. Y., LB **$1,611,000** (5 bidders), general constr., plumbing and drainage, heating, ventilating, electrical work and lighting fixtures PUBLIC SCHOOL 132, East 168th St. between Washington and Park Aves., Bronx Boro., NEW YORK, N. Y. Bd. Educ., 45-12 Crescent St., Long Island City, N. Y. Bids July 31. CD 6/30.

▲ **Dworman Assocs.**, 400 Park Ave., New York 17, N. Y., Owner Builds. **$1,900,000**. 12 story APARTMENT, 151-89 E. 76th St., NEW YORK, N. Y. CD 5/12.

▲ **Francis J. Kleban**, 430 Park Ave., New York 22, N. Y., Owner Builds. **$1,000,000.** OFFICE BLDG., 410 Park Ave., NEW YORK, N. Y. CD 1/23.

▲ **O. Roy Chalk Realty & Constr. Co.**, 160 Central Park Sq., New York, Zone 19, N. Y., Owner Builds. **$2,000,000.** 16 story APARTMENT, 150-64 E. 77th St. and 109-7 Lexington Ave., NEW YORK, N. Y. CD 5/15.

▲ **Shapiro & Weingrow**, 2245 E. 17th St., Brooklyn, Zone 29, N. Y., Owner Builds. **$2,000,000**. 16 story APARTMENT, 955-67 Madison Ave. and 29-37 E. 75th St., NEW YORK, N. Y. CD 5/15.

210 E. 58 St. Realty Corp., 400 Park Ave., New York 17, N. Y., Owner Builds. **$885,000**. 11 story APARTMENT, 210-18 E. 58 St., NEW YORK, N. Y. CD 5/12.

▲ **Joseph L. Muscarelle, Inc.**, Marywood, N. J., CA NUCLEAR and ORE LABORATORIES, ADMINISTRATION and RESEARCH BLDG., POWER and UTILITIES BLDG., ORE and MINERALS LABORATORY, STERLING FOREST, N. Y. Union Carbide Nuclear Co., Div. Union Carbide Corp., 30 E 42 St., New York 17, N. Y. Osborn Engineering Co., 7016 Enclid, Cleveland, O., engr. CD 11/12, under CA.

▲ **Standard Constr. Co.**, 1010 Vermont Ave., N. W., Wash., D. C. CA **$2,826,000**. constr. 200 unit HOUSING DC 123, Stoddard Terrace, at Ridge Rd. SE between Anacostia Ave. and O Sts., WASH., D. C. National Capitol Housing Auth., 1729 New York Ave. N. W., Wash., D. C. Bids June 9. CD 6/11, under LB.

▲ **E. I. du Pont de Nemours & Co.,** Dupont Bldg., Wilmington, Del. Owner Builds. **$3,500,000.** OFFICE BLDG., Chestnut Run Laboratories, Center Rd. WILMINGTON, DEL. CD 10/16/45.

SOUTH

HEAVY CONSTRUCTION—LB & CA

▲ **NORTH CAROLINA**—State Hy. Comn., Raleigh, Bids opened 7/29;

N. C.—**Blythe Bros. Co.,** 2911 Hutchinson Ave., Box 989, Charlotte 1, N. C., LB **$370,729,** est. $300,000-$400,000, b. conc. binder and surf. and shoulder 12.96 mi. US 220 between Asheboro and Seagrave 8.85818, DF-200 (6) Code 9.80803; Code 9.80838, Randolph Co.; LB **$200,281,** est. $200,000-$225,000, b. conc. binder and surf. 16.36 mi. resurf. Old U. S. 321 from Dallas to Gastonia; US 321 from Dallas to High Shoals N. C. 273 from Mt. Holly northeast to intersection with N. C. 16; N. C. 274 from Cherryville southeast to intersection with N. C. 216, streets in Dallas, Mount Holly and Gastonia, 7.811166, 7.811167, 7.811173, 9.81210, 9.81227, 9.81213, Gaston Co.;

N. C.—**Midstate Contractors, Inc.,** Hickory, N. C., LB **$348,035,** est. $300,000-$400,000, b. conc. binder and surf. and shoulder constr. 14.6 mi. resurf. NC 18 from Scales St. in Morgantown to Catawba Co. line Proj. 8.88200 DF-348 (4), Burke Co.;

N. C.—**Clinchfield Concrete Co., Inc.,** Church Ext., Greensboro, N. C., LB **$1,477,065,** est. exceeds $500,000, CABC, conc. pavement and shoulder constr. 8.14 mi. U. S. 64 and 70 from Catawba River, Northeast to Statesville By-Pass, Proj. 8.16440, I-40-2 (15) 140, Iredell Co.;

N. C.—**Barrus Constr. Co.**, Box 395, Kinston, N. C., LB **$675,900,** est. exceeds $500,000; CABC, S. A. base, b. conc. surf. 7.09 mi. U. S. 17 between New Bern and the Jones County line, Proj. 8.82073, **DF-196(10)** Craven Co. CD 7/21.

(Continued on page 88)

Flick of a switch spreads capacity load of clay and loam topsoil in 15 sec. at a subdivision job near Washington, D.C. "On short hauls, my 2 D 'Pulls will outmaneuver and outperform larger machines," says Owner R. A. Hammett.

How R. A. Hammett makes small-yardage jobs yield consistent profits

R. A. Hammett Excavating Co. of Washington, D.C., specializes in earthmoving for new housing developments. Since they make their profits from a volume of small-yardage jobs — rather than a volume of yardage on a small number of big jobs — the firm uses small work teams of fast high-production machines.

In this highly competitive field . . . where speed, maneuverability, mobility and work capacity count heavily . . . the LeTourneau-Westinghouse roadable D Tournapull® has found a permanent place.

On a recent, typical job, Hammett contracted to level and grade streets over the new 25-acre Livingston Park Subdivision in Washington. The material to be worked was loam topsoil over an extremely hard clay. Unfortunately he started work on this job in bad weather.

Load in water-soaked area

During the course of the job, a series of heavy downpours soaked the area, leaving 2′ of water in some low spots. Yet, within 4 hrs. after the final rain stopped, the D 'Pull* was back on the job.

Teamed with a medium-size crawler-dozer and a rubber-tired front-end loader, the "D" handled the load-haul-spread dirt to fill in low spots around a recently-completed office building. Push-loaded by the crawler-dozer on the high spots, the 9-yd. D 'Pull moved the tough material to fill sections bordering the building. Between push-loading passes, the dozer cleaned out water and muck from low spots on the work site. This speeded cycles.

The "D" boiled in big loads in an average 54 sec. The 'Pull pioneered its own haul route over 550′ of wet ground. Haul, mostly in 2nd gear, averaged 1 min., 42 sec.

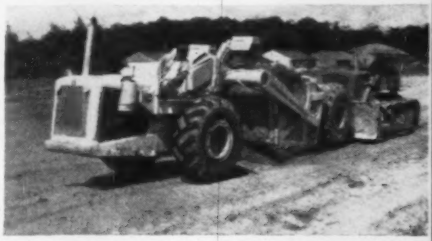
Backs onto fill to spread

On the fill, operator found it easier to back "D" in and spread on the way out . . . rather than to attempt to spread going in and turn-around on the soggy fill. Load was discharged on a 30′ strip in 15 sec. Return was made over a shorter 460′ route at an average speed of 6.8 mph.

Since completion of the Livingston Park Subdivision job, Mr. Hammett has purchased another "D" which teams with the older machine on medium-size as well as small contracts. Both are kept busy.

Hit-and-run specialist

If you face the same profit problem as Hammett Excavating Co., it will pay you to investigate the "work-and-run" LeTourneau-Westinghouse D Tournapull. Here is a speedy, roadable-without-permit scraper of good self-load or push-load capacity for hit-and-run assignments.



Push-loaded by crawler-dozer, 9-yd. "D" boils in a good load fast in 100′. Versatile D 'Pull can be push-loaded by any type of tractor or grader, or can self-load profitably.

*Trademark DP-1691-DCJ-1

LeTOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

(Continued from page 86)

▲ **NORTH CAROLINA**—State Hy. Comn., Raleigh,
Wm. Muirhead Constr. Co., Box 2012, Durham, N. C. CA **$2,072,514**, grade, structures 5 mi. US 70 addnl. lane from west end Durham by-pass east to Jct. US 15 Proj. 8.14107, I-85-4 (10) 171 Durham Co. Bids July 1, awarded July 28. CD 7/11, under LB.

▲ **SOUTH CAROLINA**—State Hy. Dpt., Hotel Jefferson, Columbia,
Ballenger Paving Co., P. O. Box 927, Greenville, S. C. CA **$1,773,574**, grading, etc. 7.076 mi. 4 lane divided hy. Int. Rte. 26 from US Rte. 276 near Clinton Northerly to Rte. 49. S. C. Dockets Nos. 30.376 and 42.497 F.A. Proj. No. I-26-2 (14) (I-304-2 (14)) Laurens and Spartanburg Counties. Bids June 17. CD 6/26, under LB.

▲ **South Atlantic Constructors, Inc.**, Box 666 Greenwood, S. C. LB **$236,466**. Section 1, sewage treatment plant, LAKE CITY, S. C. City, City Hall, Lake City, S. C. Bids July 29. CD 7/15;
Kahn & Jackson, P. O. Box 595, Columbia, S. C. LB **$790,450**. Section 2, sewage interceptor lines (Lake City, S. C.).

▲ **S. J. Curry & Co.**, P. O. Box 1436, Oglethorpe Ave., Albany, Ga., LB **$1,332,660**, est. over $200,000. 10 m.g.d. sewage treatment plant, ALBANY, GA. City, City Hall, Allbany, Ga. Bids July 30. CD 7/15.

▲ **FLORIDA**—State Road Dpt., Tallahassee, Bids opened 7/29,
Fla.—**Brinson-Allen Constr. Co. & Brinson Constr. Co.**, Box 2209, Tampa, Fla., LB **$6,295,266** (4 bidders) limerock base with surf. tr. shoulders, limerock base with b. conc. surf. course and binder course, 3 concrete slab deck single grade separation bridges, 2 concrete slab deck double bridges, aluminum handrail, drainage structures, concrete sheet piling with anchor beams, fencing, 10.044 mi. SR Nos. 40, 688 and 687, 4-lane west approach to Mid-Bay bridge, and Ulmerton Rd., 9 St. and 4 St. connections, FAI Proj. I-4-1, (9) 5, Job 1519-403, Jobs 1512-103, 1512-104, 1524-101, Pinellas Co.;
Fla.—**Powell Bros., Inc., & Heavy Constructors, Inc.**, Box 281, Fort Lauderdale, Fla., LB **$3,590,348** (5 bidders) 6-lane limerock base with b. conc. surf. course and binder course, 3 lane 130 ft. and 145 ft. concrete bridges on concrete piles, aluminum handrail, concrete sheet pile bulkheads, drainage structures, fencing, roadway lighting, ramp connections to 36 and 38 Sts. 1.651 mi. SR 25, west and central portions of 36 St. Causeway across Biscayne Bay in Miami, FAI Proj. I-A-95-1 (6) 6, Job 8709-402, Dade Co.;
Fla.—**Florida Asphalt Paving Co.**, Box 1013, Panama City, Fla., LB **$449,487** (4 bidders) shell stab. base with b. conc. and surf. tr., concrete sheet pile bulkheads, drainage structures 1.509 mi. SR 30 (US 98), East and West Roadway approaches to Hathaway Bridge over St. Andrew's Bay near Panama City, Fed. Aid Proj. DF-017-1 (3) and DF-017-2 (13), Jobs 4601-601 and 4602-601, SR 30 (US 98), Bay Co.;
Fla.—**W. H. Armston Co.**, Dunedin, Fla., LB **$222,716** (11 bidders) limerock base with surf. tr., 3 concrete slab bridges on prestressed concrete piling 0.834 mi. SR S-761, bridge and approaches at Peace River west of Fort Ogden, Fed. Aid Proj. S-485 (1), Job 0457-250, De Soto Co., all foregoing under CD 7/16;
Fla.—**Bay Dredging & Constr. Co.**, Box 1484, Tampa, Fla., LB **$470,142** (6 bidders) limerock base surf. tr., constr. 1,260 ft. bridge or prestressed beams on composite concrete, steel pile bents, concrete sheet pile bulkhead 0.99 mi. bridge and approaches over Myakka River at El JoBeam, State Proj. Job 01-5-175 SR-771, Charlotte Co.;
Fla.—**Hardaway Constr. Co.**, Box 477, Port Tampa City, Fla., LB **$1,380,274** (3 bidders) heavy embankment, 1,425 ft. bridge of prestressed concrete spans on concrete pile bents and piers with an electrically operated double-leaf bascule span having steel flanking spans, concrete sheet pile bulkheads, treated timber fenders, Structure E across Main Channel Intracoastal Waterway north of Pine Key; medium embankment constr. 1,266 ft. bridge of prestressed concrete spans on concrete pile bents and piers, concrete sheet pile bulkheads Structure F, across Bunce Pass crossing north of Hospital Key, Pinellas Bayway Structures, Job No. 1520-175, Pinellas Co., all foregoing under CD 7/22.

▲ **FLORIDA**—State Hy. Dpt., Holland Bldg., Tallahassee, Bids opened 7/29,
Fla.—**Marion Constr. Co.**, Box 577, Ocala, Fla., LB **$516,342** (5 bidders) grade, etc., 1.752 mi. from Harbor Oaks to south limits of Port Orange, State Proj. Job No. 7901-178, SR 5 (US 1) Volusia Co., CD 7/16; LB **$119,674** (2 bidders) surf. exist. pavement with Type I and II b. concrete, etc., 10.729 mi. between the Volusia Co. line and Crescent City and between SR 15 and the St. Johns Co. line, FAI Projs. Nos. DF-021-1 (6) (Job No. 7601-701) and DS-22 (7) (Job No. 7606-701) SR Nos. 15 and 207, Putnam Co., CD. 7/22;
Fla.—**San Marco Constr. Co.**, Box 1361, St. Augustine, Fla., LB **$1,432,026** (6 bidders) Types I and II b. conc. and binder course 188 ft. O.H. bridge over the S. A. L. R.R., etc., 12.954 mi. between SR 60 and Tarpon Springs; FA Proj. DF-025-1 (11) (Job No. 1515-601) SR 55, Pinellas Co., CD 7/22; LB **$531,-205** (4 bidders) four-lane municipal constr. consisting of medium excav. 8½ in. limerock base, Type I b. conc. surf. course with binder course, 78 ft. concrete slab deck bridge, etc., Manatee Ave. in Bradenton from 34th St. to 14th St., State Proj. Job No. 1315-183, SR 64, Manatee Co. CD 7/16;
Fla.—**Noonan Constr. Co.**, Drawer 470, Pensacola, Fla. LB **$344,588** (3 bidders) sand clay base with surf. treat., etc. 1.222 mi. between SR 291 and SR 10-A west of Escambia Bay, FA Proj. DF-006-1 (12), (Job No. 4801-601) SR 10 (U.S. 90) Escambia Co.;
Fla.—**R. H. Strickland**, Quincy, Fla. LB **$279,989** (3 bidders) heavy excav., etc. 0.913 mi. between SR 267 (Robert St.) and Duval St. in Quincy, FA Proj. DF-006-3 (7) (Jobs Nos. 5001-601 and 5003-601) SR 10 (U.S. 90) Gadsden Co. CD 7/22.
Fla.—**Jas. H. Craggs Constr. Co.**, Box 22, Gainesville, Fla. LB **$244,823** (3 bidders) grading, etc. from SR 25 SW approx. s0.0 (along new Medical School at University of Fla.) State Proj. Job No. 2609-106, SR 24, Alachua Co. CD 7/22;
Fla.—**Duval Eng. & Contg. Co.**, Box 1588, Jacksonville, Fla LB **$2,147,998** (3 bidders) 8 in. c. conc. sect. between Beaver St. and 8th St. (Jacksonville Expressway) (6 lane constr.) FAI Proj. I-95-5 (9) 344 (Job No. 7202-481) SR Nos. 5, 10-A and 15, SR Nos. 5, 1-0-A and 15. Duval Co. CD 7/16.

▲† **Ford Constr. Co.**, P. O. Box 38, Dyersburg, Tenn., CA **$1,204,600**. constr. approx. 70,000 squares asphalt upper bank paving at several localities on banks of Mississippi River between Miles 583 and 230 AHP, MISSISSIPPI, LOUISIANA and ARKANSAS. U. S. Eng., P. O. Box 60, Vicksburg, Miss. Bids June 17. CD 5/26.

▲ **KENTUCKY**—Commonwealth of Ky., Dpt. Hys., Frankfort,
Kelly Contr. Co. Inc., 317 Wallace Ave., St. Matthew, Ky., CA **$1,036,040**. high type surf. 5.435 mi. Somerset-Tennessee State line Rd. DF 170 (9) SP 74-13 & SP 74-593, McCreary Co. Bids July 25. CD 7/31, under LB.

BUILDINGS—LB & CA

▲ **Batson-Cook Co.**, P. O. Box 151, West Point, Ga., LB Est. **$1,000,000**. DEPARTMENT STORE addn. ATLANTA, GA. Rich's, Inc., Forsyth St., Atlanta, Ga. Bids July 10.

T. C. Brittain Co., P. O. Drawer B, Decatur, Ga., CA **$817,378**, MOTOR HOTEL, ATLANTA, GA. Colony Motor Hotel, c/o Schoeppl & Frese, archts., 2944 Biscayne Blvd., Miami, Fla., Bids July 1, CD 7/14, under LB.

▲ **Pattillo Constr. Co.**, Box 570 Decatur, Ga., CA **$1,184,113**, FACTORY and OFFICE BLDG., ATLANTA, GA., Dan-Neal Corp., c/o Bodin & Lamberson, archts., 827 Forsyth Bldg., Atlanta, Ga. Bids June 5. CD 6/16, under LB.

▲ **Delta Constr. Co.**, Drawer 257, Waycross, Ga., CA **$1,207,700**, 70 bed HOSPITAL, BRAINBRIDGE, GA. Decatur County-City of Bainbridge Hospital Auth., Bainbridge Ga. Bids June 24, Awarded July 10, CD 7/9, under LB.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

▲ **Wis., Milwaukee**—BA 9/3—City, City Hall, Hawley Road Viaduct. $1,150,000. Plans deposit $10. E. A. Schmidt, city engr. George C. Ashton, bridge engr. CD 10/24/56.

BUILDINGS—BA

Mich., Escanaba—HOSPITAL—BA 8/26—St. Francis Hospital, Sisters of Third Order of St. Francis, Peoria, Ill., hospital addn., alterations $900,000. Plans deposit $25. Walter Butler Co., 1300 Minnesota Bldg., St. Paul, Zone 1, archt. CD 2/11/54.

▲ **Mich., Parchment**—SCHOOL—BA 8/27—Parchment School Dist. No. 40, Junior-Senior High School. $1,500,000. Stapert, Pratt, Bulthuis, Sprau & Crothers, 410 West Walnut St., Kalamazoo, archts. CD 12/6.

Wis., Madison—SCHOOL—BA 8/28—Bd. Educ., Madison, Van Hise Junior High School, $800,000. Plans deposit $50, Weiler & Strang & Assocs., 810 University Bay Dr., archts-engrs. CD 5/23.

BUILDINGS—SLC

▲ **Ind., Hammond**—MOTOR HOTEL—West Point Hotel, Inc., 8956 Revere Court, Munster, soon lets contract 2 story, 100x500 ft., face and glazed brick insul. panels and Ind. limestone, West Point Motor Hotel. $1,000,-000. J. McClure Turner, 5945 Hohman St., archt. CD 2/28/57.

HEAVY CONSTRUCTION—LB & CA

▲† **S. J. Groves & Sons**, Westley Temple Bldg., Minneapolis, Minn., CA **$6,566,258**, dam for Dillon Reservoir, Licking River, CIVENG-46-022-58-47, OHIO. U. S. Eng., Room 201, Cabell Co. Courthouse, 4 Ave. and 8 St., Huntington, W. Va. Bids May 28. CD 6/3, under LB.

▲† **W. L. Johnson Constr. Co. & Assocs.**, P.O. Box 668, Bexley Station, Columbus 9, O. CA **$1,644,711**, exten. Runway 9-27 and related imprvs. Port Columbus Airport, NBy 14446, COLUMBUS, O. Officer in Charge of Constr., Bureau Yards & Docks, Contracts, 4th Naval Dist., U. S. Naval Base, Phila. 12, Pa.

▲ **W. Timmons Co.**, 7211 New Germany Rd., Dayton, O. CA **$1,260,722**, officers quarters, Wright-Patterson Air Force Base, ENG-15-029-58-56, DAYTON, O. U. S. Eng., 830 W. Broadway, Louisville, Ky. Bids May 28, awarded July 1. CD 6/3, under LB.

▲ **INDIANA**—State Hy. Comn., John Peters, chn., State House Annex, Indianapolis, Bids opened 7/29,
Ind.—**Calumet Paving Co.**, Zionsville, Ind., LB **$1,495,-411**, est. $1,540,983, (4 bidders), c. conc., Contr. R-4459, I-0304(11) S-556(2), Boone Co.; LB **$2,732,-016**, est. $2,864,547, (4 bidders), c. conc., Contr. R-4507, I-05-3(10) 3, Shelby and Marion Counties;
Ind.—**Ralph Rogers & Co.**, S. Adams St., Bloomington, Ind., LB **$468,062**, est. $503,772, (3 bidders), bit. pavement macadam base, Contr. R-4468, S-817(3) S-817(4), Montgomery Co.;
Ind.—**J-P Constr. Co.**, 1750 State St., Chicago Heights, Ill., LB **$402,029**, est. $407,661, (4 bidders) bit. resurf. conc. base, Contr. RS-4472, ST-32 E DF-32(8), Lake Co.;
Ind.—**A. L. Dougherty Co.**, 3333 Sheffield St., Hammond, Ind., LB **$2,255,755**, est. $2,487,048, (8 bidders), c. conc., Contr. R-4504, I-03-1(11) 8, Clark Co.;
Ind.—**Olinger Constr. Co.**, Huntingburg, Ind., LB **$2,407,064**, est. $2,543,223, (9 bidders), c. conc., Contr. R-4505, I-03-1(19) S-804(1), Clark Co.;
Ind.—**S. J. Groves & Sons**, Wesley Temple Bldg., Minneapolis, Minn., LB **$1,181,564**, est. $1,349,824, (4 bidders), c. conc., Contr. R-4506, I-05-1(11) 4, Vermillion and Fountain Counties;
Ind.—**J. C. O'Connor & Sons**, 2104 Miner St., Fort Wayne, Ind., LB **$911,212**, (1 bidder), c. conc., Contr. R-4508, DF-17(39), Porter and LaPorte Counties;
Ind.—**George M. Eady**, 340 Byrne St., Louisville, Ky., LB **$1,305,101**, (3 bidders), c. conc., Contr. R-4396, I-03-1(1) U-398(12), Clark Co.;
Ind.—**Meshberger Bros. Co.**, Linn Grove, Ind., LB **$292,386**, est. $391,011, (8 bidders), bit. base and resurf., Contr. RS-4522, DF-349(6), Wells and Adams Counties. CD 7/15.

▲ **Chas. H. Shook, Inc.**, 582 E. 2 St., Dayton, O., LB **$1,212,750** (13 bidders), Contr. A, 1 story, brick, rein.-con. sewage treatment plant, with secondary type activated sludge process, trickling filters, SHELBYVILLE, IND., City, City Hall, Shelbyville, Ind. Bids July 29. CD 7/18;
Vogel Constr. Co., Inc., 3760 E. St. Clair St., Indianapolis, Ind., LB **$516,878** (8 bidders), Contr. B, sanitary sewer extensions, (Shelbyville, Ind.).

▲ **Kenny Constr. Co.**, 3220 Oakton St., Skokie, Ill., CA **$1,375,150** Calumet Intercepting Sewer Cont. 17-D, CHICAGO, ILL. Metropolitan Sanitary Dist. of Greater Chicago, 100 E. Erie St., Chicago, Ill. CD 7/23, under LB.

▲ **Kil-Bar Electric Co.**, 2261 N. Clybourn Ave., Chicago, Ill., CA **$6,159,833**, street lighting sys., Spec. 80-64-58-3, CHICAGO, ILL. City, City Hall, Chicago, Ill. CD 7/7.

▲ **Bregman Constr. Co.**, W. 32 Randolph St., Chicago, Ill. CA **$1,617,000**. training facilities on Sites 1 and 11 at Chanute Air Force Base, ENG-11-032-58-97, RANTOUL, ILL. U. S. Eng., 475 Merchandise Mart, Chicago 54, Ill. Bids July 16. CD 6/30.

▲† **Siesel Constr. Co.**, 514 E. Ogden Ave., Milwaukee, Wis., CA **$711,434**, addnl. facilities at Special AAA Sites M-42, M-54, M-64 and M-74 in Wisconsin, Schedule A, ENG-11-032-58-91, WISCONSIN-ILLINOIS, U. E. Eng., 475 Merchandise Mart, Chicago 54, Ill., Bids June 19, CD 6/11;
Lee Constr. Co., 127 N. Dearborn St., Chicago, Ill., CA **$766,000**, Special AAA Sites C-40, C-41 and C-44 in Ilinois, Schedule B, (Wisconsin-Illinois).

▲ **S. A. Healy Co. & Gargaro Co., Inc.**, 40 E. Seven Mile Rd., Detroit 3, Mich., CA **$2,157,000**, Contr. PW-3003, 0.56 mi. 13 ft. 6 in. diam. concrete tunnel sewer in Conant and Emery from Conant and Seven Mile Rd. to Emery and Dequindre and 0.94 mi 12 ft. 3 in. inside diam. concrete tunnel sewer in Emery from Dequindre to Coventry, also special structures at Dequindre, Oakland and Coventry and other related work at various locations, DETROIT, MICH. At Office, M. F. Wagnitz, city engr., 528 City-County Bldg., Detroit 26, Mich. Bids June 17. CD 5/9.

▲† **C. A. Hooper Co.**, 2030 Pennsylvania Ave., Madison, Wis., CA **$1,919,342**, utilities extensions and addn. to Central Heating Plant at K. I. Sawyer Air Force Base, ENG-20-064-58-65, MARQUETTE, MICH. U. S. Eng., 1101 Washington Blvd., Detroit, Mich. Bids July 10. CD 6/25.

BUILDINGS—LB & CA

▲ **Wm. Leuvelink & Son**, 2316 Duck Creek Rd., Cincinnati, O., LB **$811,461** RECEIVING AND TRAINING UNIT, Rollamn State Hospital for Dpt. Mental Hygiene & Correction, CINCINNATI, O. Ohio Dpt. P. Wks., State Dpt. Bldg., Columbus, O. Bids July 29. CD 7/14.

▲ **George Sollitt Constr. Co.**, 109 N. Dearborn St., Chicago, Ill., LB **$1,299,957**, 10 story bsmnt. brick, stone MEN'S DORMITORY BLDG., 55th and University Ave., southwest corner, CHICAGO, ILL. University of Chicago, 5801 S. Ellis Ave., Chicago, Ill. CD 6/24.

▲ **Great Western Contg. Co.** 55 E. Washington St., Chicago, Ill., CA **$2,000,000**, OFFICE BUILDING Addn. CHICAGO, ILL. American Medical Assn., 535 N. Dearborn St., Chicago, Ill. CD 3/10.

▲ **Harmony Bldg., Corp.**, 2949 W. Peterson Ave., Chicago, Ill., CA **$1,300,000** 5 story, 78 unit MOTEL, N. W. Corner Michigan Ave. and Roosevelt Rd., CHICACO, ILL., Owner, c/o contractor. Benjamin H. Stein, 222 W. Adams St., Chicago, Ill., archt.

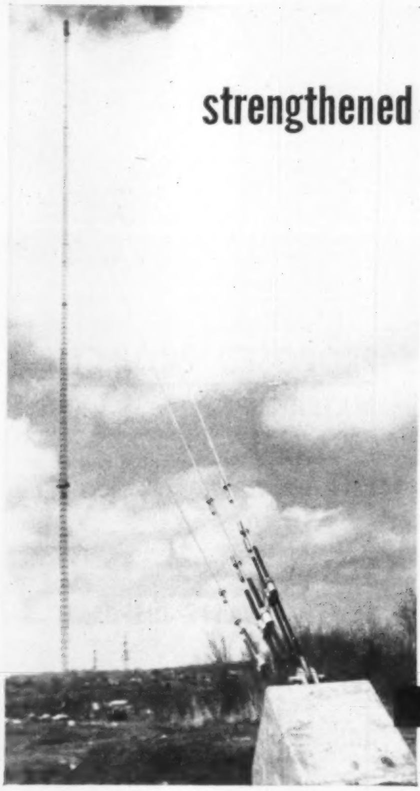
▲ **S. N. Nielsen** 3059 W. Augusta St., Chicago, Ill., CA **$1,589,000**, 13 story Ill. 2-6 APARTMENT, Campbell and Monroe Sts. CHICAGO, ILL., Chicago Housing Authority, 608 S. Dearborn St., Chicago 5, Ill. CD 6/9.

▲ **Chicago Constr. Co.**, 707 Durdee Rd., Northbrook. Own Forces. **$2,700,000**, Unit 3, 150 HOMES, Deerfield Park, DEERFIELD, ILL. CD 7/3/56.

▲ **Edward Gray Corp.**, 12233 S. Ave. O., Chicago, Ill., CA **$2,484,484** Homewood Flossmoor Community HIGH SCHOOL, bounded by Kedzie, Flossmoor Rd., Brumley and Governors Hy., FLOSSMOOR, ILL. School Dist., 233 1955 Ridge Rd., Homewood, Ill. CD 7/1.

C. W. Haynes Co., 135 S. La Salle St., Chicago, Ill., CA **$890,000**, 1 story, mezzanine FACTORY addn., 3700 W. Lake, GLENVIEW, ILL. Signode Steel Strapping Co., 2600 N. Western Ave., Chicago, Ill. CD 9/25.

(Continued on page 90)



TV tower foundations and anchorages strengthened with LACLEDE PREFABRICATED REINFORCING

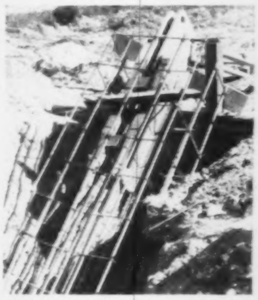
KSD-TV's new 1152-foot television antenna tower in St. Louis, Missouri, is held upright by fifteen 2" guy cables secured to six massive underground concrete blocks. Each required approximately 100 cubic yards of concrete.

Laclede reinforcing steels used in the anchors were shop weld-assembled to insure accurate fabrication, and proper distribution of the heavy design load requirements imposed upon the tower and its guys.

Specify these Laclede Reinforcing Steels for Construction:

■ multi-rib reinforcing bars ■ corrugated steel centering ■ welded wire fabric ■ electrical weld gas tubing ■ form and tie wire ■ steel pipe ■ spirals ■ conduit ■ stress relieved wire ■ 7 wire strand for prestressing

ARCHITECT: Hellmuth Obata & Kassabaum
CONSULTING ENGINEER: *Wm. C. E. Becker*
CONTRACTOR: *E. C. Mikkelsen*
Construction Company, Inc.
All of St. Louis, Missouri

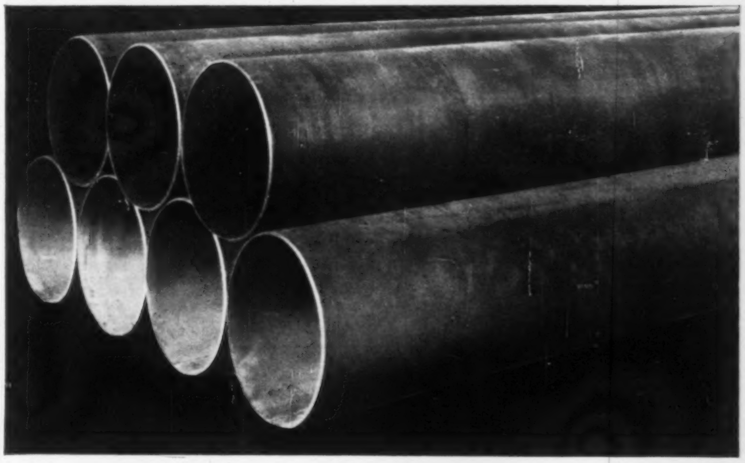


Delivered to the job site ready for installation, the reinforcing steel for each of the anchors was prefabricated and welded into units at Laclede's plant to insure maximum strength.

LACLEDE STEEL COMPANY

Producers of Steel for Industry and Construction
SAINT LOUIS, MISSOURI

Large O. D. ALLOY PIPE



fabricated to meet your requirements

For high pressure, high temperature water lines . . . for sewage outfall lines . . . for any job requiring fabricated steel pipe of 14" O.D. or larger . . . you can depend on Posey's many years of engineering and manufacturing experience and complete production facilities. Write, wire or phone for information without obligation.

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Steel Plate Division
LANCASTER, PENNSYLVANIA
New York Office: Graybar Building

TANKS • DIGESTERS • PRESSURE VESSELS • DREDGE PIPE

(Continued from page 88)

▲† **John C. Long, Inc.**, 600 W. Jackson Blvd., Chicago, Ill. CA **$1,340,000** 2 story, steel, brick, concrete machinists mates and boilermens SCHOOL, GREAT LAKES, ILL. Ninth Naval Dist., Great Lakes, Ill. CD 6/30.

▲† **Kuhne-Simmons, Inc.**, Champagne, Ill., CA **$1,941,515**, imprv. 800 Wherry HOUSING units at Chanute Air Force Base, RANTOUL, ILL. Procurement Officer, Chanute Air Force Base, Rantoul, Ill. CD 7/1, under LB.

▲ **George A. Fuller Co.**, 111 W. Washington St., Chicago, Ill., CA **$1,250,000,** 1 story gypsum processing PLANT, OFFICE, loading dock, roads, railroad, Waukegan Harbor area, WAUKEGAN, ILL. National Gypsum Co., 325 Delaware Ave., Buffalo, N. Y. Bids July 3. CD 6/19.

▲ **Hyland Builders Corp.**, 7729 Sheridan Rd., Chicago, Ill. Own Forces. **$2,080,000.** 32 APARTMENTS, 4 units, Edwards and Walter Sts., WAUKEGAN, ILL., Roy Schoenbrod, 7728 Sheridan Rd., Chicago, Ill., archt.

▲ **Ragnar Benson, Inc.**, 4744 W. Rice St., Chicago, Ill., CA **$9,500,000,** DISTRIBUTION CENTER and WAREHOUSE, OFFICE REPAIR SHOP, water sys., blacktop paving, parking area, SE cor. Kress Rd. and Hawthorne Lane, WEST CHICAGO, ILL. Western Electric Co., 195 Broadway, New York, N. Y. CD 7/3.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

▲† **Okla., Oklahoma City**—DORMITORIES—BA 8/28—U. S. Eng., P. O. Box 61, Tulsa, four 800-men capacity dormitories, ENG-34-066-59-5, $1,404,000; airmen's dining hall, ENG-34-066-59-6, $360,000. Tinker Field.

▲ **Mo., Columbia**—AGRICULTURAL BLDG.—BA 9/10—Curators University of Missouri, 116 Jesse Hall, Columbia, agricultural bldg. addn. on Campus. $2,100,000. Gentry & Voskamp, 4 W. 13th St., Kansas City 5, Mo., archts. CD 2/1/56.

BUILDINGS—BA

▲ **Minn., Bloomington (P.O. Minneapolis)**—SCHOOL—BA 8/21—Bd. Educ., 2 story, 185x190 ft. Junior High School, Ninetieth St. and Portland Ave. $2,400,000. Extended date. CD 7/30.

HEAVY CONSTRUCTION—LB & CA

▲† **A. Hedenburg & Co.**, 4621 East Superior St., Duluth, Minn., LB **$4,176,841** (5 bidders), SM-73 (Goose) facilities at Duluth Air Force Base, ENG-21-081-58-26, DULUTH, MINN. U. S. Eng., 1217 Post Office & Custom House, St. Paul, Minn. Bids July 29. CD 7/14.

Hansen-Niederhauser, Inc., 16 Kensington Ave., Salt Lake City, Utah, CA **$837,769**, constr. heating plant addn. (SAC) Grand Forks Air Force Base, IFB-ENG-25-066-58-75, GRAND FORKS, N. D. U. S. Eng., 1709 Jackson St., Omaha, Neb. CD 9/17.

▲ **Metropolitan Paving Co.**, 300 South Indiana St., Oklahoma City, Okla., CA **$1,013,066**, est. $1,000,000, runway extens. and imprvs. at Will Rogers Field, OKLAHOMA CITY, OKLA. City, City Hall, Oklahoma City, Okla. Bids June 24, Awarded July 31. CD 7/11, under LB.

BUILDINGS—LB & CA

▲ **Sheehy Constr. Co.**, 1255 Larpenteur Ave. West, St. Paul, Minn., CA **$2,000,000,** 2 and 3 story ground floor, cross-shape, 500 x 600 ft., NOVITIATE BLDG., ST. BONIFACIUS, MINN. Wisconsin Province Society of Jesus, 3109 N. Lake Dr., Milwaukee, Wis. Bids July 17. CD 7/2.

▲ **McCarthy Bros. Constr. Co.**, 4903 Delmar Blvd., St. Louis 8, Mo., CA **$1,034,350,** general contract FINE ARTS CENTER, Hitt St. between University Ave. and Lowry St., COLUMBIA, MO. Curators of University of Missouri, Dale O. Bowling, bus. mgr., 116 Jesse Hall, Columbia, Mo. Bids July 10. CD 7/16, under LB.

▲ **Turnbull, Inc.**, 2630 Chester Ave., Cleveland 14, O. CA Est. **$8,500,000.** cement PLANT, near ODESSA, TEX. Western Cement Corp., c/o contractor.

FAR WEST

HEAVY CONSTRUCTION—BA

▲ **Calif., Fresno**—ADMINISTRATION BLDG., etc.—BA 9/16—City, City Hall, 2326 Fresno St., 6 story, steel frame and Q deck precast panel wall and some curtain wall constr. administration bldg.; 1 story maintenance bldg. at Fresno Air Terminal, $1,000,000. Plans deposit $100. Allen Y. Lew, Fresno Bldg., archt. CD 10/17.

BUILDINGS—BA

▲ **Calif., Auburn**—SCHOOL—BA 8/26—Placer Union High School Dist., 100 Agard St., Del Oro High School, Loomis and Penryn, $1,170,000. Plans deposit $25. Lawrence G. Thomson, 325 W. 3 St., Chico, archt. Keliberg, Paquette & Maurer, 417 Market St., San Francisco, engrs. CD 2/28.

HEAVY CONSTRUCTION—LB & CA

▲ **CALIFORNIA**—State Div. Hys., 1120 N. St., Sacramento,

Calif.—**Baldwin Contg. Co.**, 9th and Yuba Sts., Marysville, Calif. CA **$837,933,** grade surf. relocated 5.7 mi. 2 lane hy. State Sign Rte. 12 between Sacramento River Bridge at Rio Vista and Mokelumne River Bridge to the East. Sacramento Co. Bids July 23, awarded Aug. 1. CD 7/30, under LB.;

Calif.—**Gordon H. Ball, Gordon H. Ball Inc. and Ball & Simpson**, 685 Delaware St., Berkeley, Calif. CA **$3,662,946,** grading, paving 2 mi. 6 lane freeway State Sign Rte. 24 between 0.3 mi. east of Orinda Hy. and 0.8 mi. east of Sunnybrook Dr. west of Lafayette, incl. 2 bridges and interchange facilities, Contra Costa Co. Bids July 23, awarded July 31. CD 7/25, under LB.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles. Bids opened 7/30,

Cox Bros. Constr. Co., & J. E. Haddock, Ltd., P. O. Box C, Stanton, Calif. LB **$1,534,334** (7 bidders) grading, paving to widen 5.5 mi. State Sign Rte. 22, Garden Grove Blvd. to 4 lane divided hy. between Knott Ave. in Westminster and 0.1 mi. west of Los Cerritos Channel, incl. 3 bridges. VII-L. A., Ora. 179, A, WTm, Los Angeles and Orange Counties. CD 7/2.

▲ **CALIFORNIA**—State Div. Hys., 1120 N. St., Sacramento,

Dan Caputo Co. & M. J. B. Co., Inc., P. O. Box 1251, Stockton, Calif. CA **$1,150,930,** constr. bridge ramps and sections of roadway to provide interchange on Bayshore Hy. at Mountainview Alviso Rd. in Sunnyvale, IV-SCL-68-113. Sun; B. A., Santa Clara Co. Bids July 23, awarded July 28. CD 7/23, under LB.

▲ **CALIFORNIA**—State Div. Hys., 1120 N. St., Sacramento, Bids opened 7/30,

Madonna Constr. Co., P. O. Box 910, San Luis Obispo, Calif. LB **$1,085,577** grading, surf. to constr. 3.1 mi. 4 lane expressway and 2.5 mi. of 2 lane hy. State Sign Rte. 1 between ½ mi. west of Pennington Creek and Morro Bay and constr. bridge over Baywood Park Rd., V-SLO-56-D, San Luis Obispo Co. CD 7/2.

▲ **American Pipe & Constr. Co.**, 309 S. Atlantic Blvd., Monterey Park, Calif. CA **$6,497,513** constr. 6 siphons, 7 mi. for Colorado River Aqueduct between San Jacinto and Val Verde Tunnels and 6 siphons ½ mi. for the 2nd San Diego Aqueduct between the Colorado River Aqueduct and Auld Valley in county of Riverside near Hemet, Spec. 558, LOS ANGELES, CALIF. Metropolitan Water Dist. of Southern California, 306 W. 3 St., Los Angeles, Calif. Bids July 17 awarded July 29. CD 7/23, under LB.

▲ **Gibbons & Reed**, 825 W. 9th St. N., Salt Lake City, Utah. CA **$2,176,395** Ice House Dam, rockfill impervious core type with crest length of 1,500 ft. dikes and access roads, Upper American River Proj., El Dorado Co., Inv. 2202, SACRAMENTO, CALIF. Sacramento Municipal Utility Dist., 1708 59th St., Sacramento, Calif. Bids July 30, awarded Aug. 1. CD 8/1, under LB.;

Marin Rock & Asphalt Co., P. O. Box 675, Novato, Calif. CA **$1,322,340,** furnishing 300,000 tons concrete aggregate and filter material for Ice House Dam, (Sacramento, Calif.).

▲ **Western Contg. Corp.**, 400 Benson Blvd., Sioux City, Iowa. CA **$4,458,841,** dredging portions Mission Bay, Crescent Bay and East Bay, DOC 573464, SAN DIEGO, CALIF. City, City Hall, San Diego, Calif. Bids July 15, awarded July 31. CD 7/18, under LB.

BUILDINGS—LB & CA

MAC Constr. Co., 3740 Lois Lane, Salt Lake City, Utah, LB **$750,000,** 8 story, all steel APARTMENT, SALT LAKE CITY, UTAH. Wasatch Towers, c/o Bruce J. McDermott, archt., Suite 12, 1400 Foothill Dr., Salt Lake City, Utah. Bids June 5. CD 6/9.

▲ **W. H. Christensen, Inc.** 18714 Parthenia St., Northridge, Calif. CA **$1,017,000.** Sched. 1 constr. Antelope Valley ADMINISTRATIVE CENTER at Lancaster, Spec. 1764, LOS ANGELES, CALIF. Bd. Supervs. Los Angeles Co., Hall of Records, Los Angeles, Calif. Bids July 16, awarded July 29. CD 7/23, under LB.

▲ **C. L. Peck**, 816 W. 5th St., and **Noyes Roach Co.**, 5017 Telegraph Rd., both Los Angeles, Calif. CA **$2,104,000.** HOME FOR RETIRED PERSONS and CHAPEL, 1763 Royal Oaks Dr., TEMPLE CITY, CALIF. Presbytery of Los Angeles, 1501 Wilshire Blvd., Los Angeles, Calif. Orr, Strange & Inslee, 3142 Wilshire Blvd., Los Angeles, Calif., archts.

▲ **Robert E. McKee, Inc.**, 4701 San Fernando Rd., West, Los Angeles, Calif. LB **$7,323,000** (7 bidders) constr. NEUROPSYCHIATRIC INSTITUTE at University of California Medical Center, LOS ANGELES, CALIF. Regents University of Calif., Admin. Bldg., 405 Hilgarde St., Los Angeles, Calif. Bids July 29. CD 6/30.

CANADA

BUILDINGS—BA

▲ **Que., Montreal** — SCHOOL — BA 8/19 — Montreal Catholic School Comn., 3737 Sherbrooke St. E., 2 story, bsmnt. rein.-con. frame, brick high school, Papineau Ave. $1,500,000. Gerard Notebaert, 3460 Jeanne d'Arc Ave., Apt. 1, archt. Lalond & Valois, 615 Belmont Ave., engrs. CD 4/2.

▲ **Ont., Toronto**—POST OFFICE—BA 9/10—Dpt. P. Wks., Hunter Bldg., Ottawa, 10 story, rein.-con., frame post office addn., incl. parking facilities under bldg., St. Clair Ave. and Yonge St. $1,000,000. Plans deposit $500. Charles B. Dolphin, 880 Bay St., archt. CD 1/31/57.

HEAVY CONSTRUCTION—LB & CA

▲ **Canadian Western Natural Gas Co., Ltd.**, 6th Ave. and 1st St., SW, Calgary, Alta. Owner Builds. **$2,820,000.** 59 mi. 16 in. gas pipe line, Carbon gas field to Calgary, ALBERTA.

▲ **Burns & Dutton Concrete & Constr. Co., Ltd.**, 5720 4th St. S.E., Calgary, Alta., CA **$1,500,000** (8 bidders) 240x400 ft. split level, steel frame, masonry, steel panelled walls exhibits bldg., Victoria Park, CALGARY, ALTA. Calgary Exhibition & Stampede, Victoria Park, Calgary, Alta. Bids July 23. CD 7/17, under Public Bldgs.

▲ **ONTARIO**—Dpt. Hys., Parliament Bldgs., Toronto,

Dibblee Constr. Co. Ltd., 384 Bank St., Ottawa, Ont. CA **$1,254,503,** granular base course 8 mi. Hy. 17 (Trans Canada) from Cavers Hill to Pays Platt Contr. 58-103, Cavers Hill. Bids July 23, awarded July 25. CD 7/31, under LB.

▲ **QUEBEC**—Quebec Rds. Dpt., Parliament Bldg., Quebec, Que. Owner Builds. **$2,000,000.** 1,500 ft. bridge over St. Francois River, Quebec City area.

BUILDINGS—LB & CA

▲ **Pigott Constr. Co., Ltd.**, 1510 Drummond St., Montreal, Que., CA About **$4,800,000,** 6 story wing, bsmnt. and sub-bsmnt. rein.-con., frame, brick and block HOSPITAL addn., MONTREAL, QUE. Queen Elizabeth Hospital, 2100 Marlowe Ave., Montreal, Que. Bids May 22. CD 5/1.

PROPOSED PROJECTS

WATER SUPPLY

▲ **Conn., Hartford**—METROPOLITAN Dist., 115 Broad St., Cross-Country transmission main from Canton to Reservoir No. 6, West Hartford, 48 in. pipe, tunnel under Avon Mountain, Avon, Canton, Simsbury and West Hartford. **$1,000,000.** CD 10/3/56.

▲ **Okla., Shawnee,**—City, City Hall, bond election Aug. 26, impounding reservoir and W W extens. **$1,925,000.** C. H. Guernsey & Co., 2700 North Oklahoma St., Oklahoma City, consult. engrs. CD 8/15/56.

▲ **Wash., Yakima**—City, City Hall, drilling supply wells, **$1,000,000.** Bids in fall. Gray & Osborne, 228 S. 2 St., consult. engrs. CD 11/25.

SEWERS, WASTE DISPOSAL

▲ **Ala., Tuscaloosa**—City, City Hall, secondary sewage treatment plant. **$1,500,000.** A. C. Parker, 2521 6th St., consult. engr. CD 1/22/57.

▲ **Pa., New Kensington**—City, City Hall, primary treatment works. **$2,990,000.** F. M. Carothers, c/o owner, ch. engr. CD 8/16/46.

BRIDGES

▲ **Va., Alexandria**—City, City Hall, Telegraph Road Underpass and Duke St. Interchange, **$2,000,000.**
widen railway bridge, Duke St. **$300,000.**
widen King St. underpass, **$200,000.**
bridge U. S. No. 1 over Potomac Yards, **$550,000.**
bridge, U. S. No. 1, Four Mile Run, **$200,000.**
bridge, N. Van Dorn-Holmes Run **$165,000.** CD 10/9/53.

STREETS AND ROADS

▲ **CONNECTICUT**—State Hy. Dpt., 165 Capitol Ave., Hartford,

Burlington, Collinsville, Unionville—Proj. 51-106 relocation for Route 4 from Unionville Bridge to Collinsville Bridge, Fed. Proj. S-64 (2) ER-34 **$2,000,000.** Macchi, Peterson & Hoffman, 44 Gillett St., Hartford, consult. engrs.

Goshen and Litchfield—Proj. 73-90, relocation for Route 63 from Route 25 Northerly to ½ mi. north of Goshen-Litchfield Town Line, **$600,000.** John J. Mozzochi & Assocs., 265 Hebron Ave., Glastonbury, consult. engrs. CD 6/19/57.

Middletown—Proj. 82-106, relocation of Route 9, Tyron St. to Canel Rd., Fed. Proj. F-57 (8), **$5,800,000.** Mapes, Taylor, Thompson & Westcott, 2550 Main St., Branford, consult. engrs.

Thomaston—Proj. 140-105 relocation of Route 8. Fed. Proj. F-68 (4), **$4,000,000.** F. P. Molloy, 10 N. Main St., Hartford and Mapes Taylor, Thompson & Westcott, 2550 Main St., Branford, consult. engrs. Thomas Sellew, c/o owner, staff engr. CD 6/20/57.

▲ **NEW YORK**—State Dpt. P. Wks., The Gov. Alfred E. Smith State Office Bldg., Albany,

Dutchess Co.—reconstructing Rte. 55 starting Rte. 216 intersection Beekman, eastward thru Pawling connection with Rte. 22 south. FAI Proj. **$2,000,000.**

Madison Co.—reconstr. 5.1 mi. Rte. 13 and replacement existing bridge over Cazenovia Lake Outlet, FAI Proj. **$1,500,000.**

Monroe Co.—reconstr. 1.69 mi. Beahan Rd. from Chili Rd (Rte. 33A) to Scottsville Rd. (Rte. 383), FAI Proj. **$500,000.**

▲ **OKLAHOMA**—State Hy. Dpt., Capitol, Oklahoma City, Zone 5,

Washington Co.—4-lane 11 mi. U. S. 75 south of Bartlesville. **$4,000,000.**

▲ **Va., Alexandria**—City, City Hall, constr. and paving Fillmore and Chambliss to Seminary Rd. **$155,000.**
constr. and paving, N. Van Dorn-Duke to Holmes Run **$147,000.**
constr. and paving Fayette St. Pendleton to First, **$72,400.**
constr. and paving Duke St., Quaker Lane to Q. M. Depot, **$1,484,000.**
constr. and paving U. S. No. 1 Bashford to Huntgin Creek, **$1,200,000.**
Duke Telegraph Rd. to Callahan, **$300,000.**
constr. Callahan Dr., Sunset Dr., Diagonal Rd. and King St. overpass to Commonwealth, **$2,400,000.**

constr. Commonwealth Ave., Walnut to Braddock, $200,000.

constr. Commonwealth Ave., Braddock to Cliff Sts., $600,000.

constr. Mt. Vernon to Ashby St. and underpass, $300,000.

constr. Reed to Arlington Co. line, incl. bridge, $1,100 000.

constr. Fairfax St., Montgomery to Bashford to Pitt, $110,000.

constr. Edsall Rd. and Reynold-Duke to WCL, $120,000.

constr. S. Van Dorn St.-Richmond Fredricksburg and Potomac R.R. to Duke, $835,000.

constr. Timber Branch Parkway, Braddock Rd. to Ruffner St. $90,000.

constr. Taylor Run Parkway-Janney's to King St. $75,000.

constr. E. Glebe Rd. No. 1 to Wilson Blvd., $120,000.

alley paving, various locations, 5 year program, $125,-000.

paving downtown streets, 5 year program, $250,000. CD 3/19/53.

EARTHWORK, WATERWAYS

▲ **Nebraska**—Sheridan Co. Soil Conservation Dist., Cherry Co. Soil Conservation Dist., City of Gordon and Sheridan Co., Rushville and Valentine, watershed protection proj. 107,072 acres, Antelope Creek, in Sheridan and Cherry Counties. **$1,338,609**.

▲ **New York**—Madison County Soil Conservation Dist., Canastota, watershed protection proj. for Cowaselon Creek, 69,000 acres. **$1,043,635**. Approved by Dpt. Agriculture, Soil Conservation Service.

▲ **North Dakota**—Maple River Soil Conservation Dist., Chaffee, Northwest Cass Soil Conservation Dist., Casselton, Rush River Soil Conservation Dist., Gardner, Southeast Cass Co. Soil Conservation Dist., Kindred, watershed protection proj. for Swan-Buffalo Creek, 203,520 acres. **$1,672,774**. Approved by Dpt. Agriculture Soil Conservation Service.

▲ **Oklahoma**—Creek Soil Conservation Dist., Bristow, Lincoln County Soil Conservation Dist., Chandler, Okmulgee County Soil Conservation Dist., Okmulgee, watershed protection proj. for Little Deep Fork Creek, 167,488 acres. **$3,477,012**. Approved by Dpt. Agriculture, Soil Conservation Service.

▲ **Oregon**—Mt. Angel Soil Conservation Dist., Mt. Angel, Silver Creek Soil Conservation Dist., Silverton, Santiam Soil Conservation Dist., Salem, watershed protection proj. for Little Pudding River, 36,246 acres. **$1,385,682**. Approved by Dpt. Agriculture, Soil Conservation Service.

AIRPORTS

▲ **Ky., Louisville**—TERMINAL BLDG.—Louisville & Jefferson County Air Bd., Standiford Field, plans by Arrasmith & Tyler, 501 Park Ave., extension to terminal on east side, **$1,500,000**. Bids about Jan. 1959; extension and widening runways at Municipal Air Port, **$1,000,000**. Fred G. Heil & Assoc., Standiford Field, Louisville, consult. engrs. CD 4/3.

FOREIGN

▲ **Ceylon**—Dpt. of Government Electric Undertakings, Colombo, Ceylon, plans 25,000 kw Grandpass thermal electric plant and extensions of transmission system and distr. facilities, city of Colombo. **$11,100,000**. $7,400,000 loaned by World Bank.

PUBLIC BUILDINGS

▲ **Ariz., Phoenix**—COUNTY OFFICE—Maricopa Co., Phoenix, county office Bldg., Jefferson St. between 1st and 2nd Ave. **$2,500,000**.

▲ **Calif., La Mirada**—SCHOOL—Excelsior High School Dist., 17923 S. Pioneer Blvd., Artesia, plans by Kistner, Wright & Wright, 1125 W. 6th St., Los Angeles, La Mirada High School. **$2,250,000**.

▲ **Calif., Lancaster**—HOSPITAL—Antelope Valley Hospital Dist. **$1,400,000**. bond election Sept. 23, hospital addns.

▲† **Calif., Martinez**—HOSPITAL—Veterans Admin., 1305 Franklin, Oakland, hospital, Arnold Rd. **$14,000,000**. CD 9/24/56.

▲† **Calif., Sunnyvale**—TEST PLANT—Lockheed Missile Sys. Div., Lockheed Aircraft Corp., P. O. Box 504, 346,000 sq. ft. tilt-up constr. test plant addn. **$7,000,000**. George Vernon Russell, 3275 Wilshire Blvd., Los Angeles, consult. engr. Bids in October.

▲ **Calif., Torrance** — SCHOOL — Torrance Unif. School Dist., 2335 Plaza del Amo, **$15,000,000** bond election Oct. 14, for 4 schools. CD 6/14/55.

▲ **Calif., Yreka**—JUNIOR COLLEGE—Siskiouyu Junior College, c/o Supt., 1243 S. Main St., **$2,940,000** bond election Sept. 16, for 78,700 sq. ft. Junior College (admin. offices, classrooms, arts, sciences, dorm, gym, etc.). Mario J. Crampi & Assocs., Allyn C. Martin, AIA, & Paul W. Reiter, 425 Bush St., San Francisco, archts. Oscar J. Piemme, Warrens Bldg., consult. engr. CD 7/15.

▲ **Conn., Bethel** — SCHOOL — Town, Town Hall, high school. **$1,900,000**. CD 3/26.

▲ **Ill., Chicago**—HOUSING—Chicago Housing Auth., 608 S. Dearborn St., plans by Quinn & Christiansen, 134 North La Salle St. and Alfred Meill, 8 S. Michigan Ave., 14 and 4 story public housing, Lake Damen, Ill., 235, **$9,000,000**, plans by Sam Lichtman, 134 La Salle St., and Mark Kalischer, 230 E. Ohio St., three 7 story (72 units each) 4 story, housing, brick, concrete, on South Side sites, Ill. 234, $7,500,000. Bids about Oct. 14. CD 6/9.

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New 120' x 212' plant, Peekskill, N.Y.—gives Duratech 25,500 square feet, enough to contain manufacturing and storage previously housed in three separate locations. Rilco trusses span 120', spaced 19'. Contractor: Peter Moretti, Buchanan, New York.

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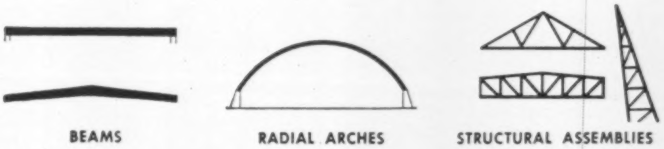

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▲ **Ill., Chicago**—HOSPITAL—South Chicago Com. Hospital, 2320 E. 93rd St., plans by Herman Frenzel, 134 N. La Salle, Zone 2, brick hospital wing addn. **$1,500,000.**

▲ **Ill., Normal**—DORMITORIES—Illinois State Normal University, four 10 story dormitories for men, dining area, **$5,500,000;** two 10 story dormitories for women, **$3,000,000.** CD 4/9/45.

▲ **Ind., Peru**—HOSPITAL—Comrs. Miami Co., Courthouse, 5 story Dukes Hospital addn. **$1,500,000.**

▲ **Md., Marlboro**—SCHOOLS—Prince George's County Bd. Educ., Marlboro, plans by Walton & Maddon, 3510 Rhode Island Ave., Mt. Rainier, high school in Beltsville area, **$1,600,000;** plans by R. L. Senseman, 7705 Georgia Ave. N.W., Wash., D. C., elementary school, Capitol Heights, **$450,000;** plans by Paul H. Kea, 5109 Baltimore Ave., Hyattsville, Md., Junior High School, District Heights, **$1,200,000;** plans by R. L. Senseman, 7705 Georgia Ave. N.W., Wash., D. C., Junior High School, Fairmont Heights, **$1,500,000;** plans by Harder & Dressel, Glen Burnie, Md., Carrollton Elementary School, Lanham, **$350,000;** plans by Harder & Dressel, Glen Burnie, Md., Oxon Hill High School addn., Oxon Hill. **$600,000;** plans by Harder & Dressel, Glen Burnie, Md., Senior High School at Locust Hills, Seat Pleasant, **$1,900,000;** plans by Walton & Maddon, 3510 Rhode Island Ave., Mt. Rainier, Douglass Junior and Senior High School, Croom Rd., Upper Marlboro, **$1,900,000.**

▲ **Mass., Weymouth**—SCHOOL—School Comn., 111 Middle St., East Weymouth, plans by Coletti Bros., 687 Boylston St., Boston, North Senior High School, Commercial St., East Weymouth. **$4,000,000.** CD 11/8.

▲† **Mich., Dearborn**—HOSPITAL, etc.—Veterans Admin. Muniitons Bldg., Wash., D.C., 50,000 sq. ft. hospital, two wings and addn. Cantee Bldg. No. 2, parking. **$2,232,000.** Constr. 1959.

▲ **Miss., Biloxi**—HOSPITAL—New Biloxi Hospital, Inc., plans by Landry & Matthes, 214 West Pine St., Hattiesburg, hospital addn. **$2,500,000.** CD 7/18.

▲† **Miss., Jackson**—HOSPITAL—Veterans Admin., Munitions Bldg., Wash., D.C., plans by Reynolds, Smith & Hills, 227 Park, Jacksonville, Fla. and Overstreet, Ware & Ware, Jackson, hospital. **$13,600,000.** CD 3/13/56.

▲ **Mo., Clayton (St. Louis 5 P. O.)**—CIRCUIT COURTS, etc.—St. Louis County, c/o Co. Superv., Court House, Clayton 5, **$6,500,000** bond election Nov. 4, 7 story bldg. to house circuit courts, magistrates courts and offices of circuit clerk and sheriff, Central, Meramec, Bonhomme and Carondelet Aves. Leo A. Daly Co., 3207 Olive St., St. Louis, Zone 3, archts. Bond election Aug. 5 cancelled. CD 5/28.

▲ **Mo., Kansas City**—SCHOOL—Bd. Educ., Bldgs. & Grounds, 800 E. 21 St., Kansas City, Mo., technical school for Kansas City Junior College. **$3,000,000.** CD 5/4/56.

▲† **Mo., St Louis**—FEDERAL OFFICE—General Services Admin., P. Bldgs. Service, 19 and F Sts. N.W., Wash. 25, D. C., plans by Murphy & Mackey, 6124 Enright Ave., St. Louis, Zone 5, 327,000 sq. ft. multi-storied, air-conditioned federal office bldg., Market, Walnut, 15th and 16th Sts. **$11,641,000.** Wm. B. Ittner, Inc., 428 Bd. Educ. Bldg., 911 Locust St., Zone 1, engr. CD 2/14.

▲ **Mo., Waynesville**—HOSPITAL—Pulaski County Hospital, Dixon, Mo., $850,000 bond election Sept. 9, hospital. **$1,450,000.** Dan R. Sandford & Sons, 800 Westport Rd., Kansas City, Mo., archts.

▲ **N. J., Newark**—HOUSING—City Housing Auth., 57 Sussex St., plans by Robert Fava, 11 Hill St., constr eight 13 story bldgs., 1600 units, Bergen St., Springfield, Belmont and Avon Aves. **$27,665,919.** CD 2/12.

▲ **N. J., Riverside** (P.O. Burlington)—SCHOOL—Regional School Bd. of Springfield, Mansfield, North Hanover and Chesterfield Twps., c/o 401 Heulings Ave., plans by Howell Lewis Shay & Assocs., Packard Bldg., Phila., Pa., Regional Junior-Senior High School. **$1,000,000.** CD 4/1.

▲ **N.J., Westwood**—HIGH SCHOOLS—Bd. Educ., Westwood Boro., plans by Ira Davey, 8 Depot Square, Englewood, Senior High School, **$2,300,000;** Junior High School, **$2,110,000.** CD 7/31/56.

▲† **N. C., Fort Bragg**—HOUSING IMPRVS.—Command Officer, Fort Bragg, 2,000 units Wherry housing imprvs. **$3,000,858.** CD 12/26/51.

▲ **O., Ashland**—SCHOOL—Bd. Educ., bond election Nov. 4, high school addn. **$2,950,000.** CD 7/11.

▲ **O., Cleveland**—HOUSING—Cleveland Metropolitan Housing Auth., Ernest J. Bohn, dir., 1332 W. 28th St., Zone 13, plans by Hays & Ruth, 1720 Euclid Ave., Zone 15, jointly with Skidmore, Owings & Merrill, 30 W. Monroe St., Chicago, Ill., 835 public housing, W. 25 St., Cuyahoga River Bridge Ave. and Detroit high-level bridge, also 186 units, Brookpark Rd., **$14,000,000-$15,000,000,** Barber, Magee & Hoffman, 1900 Euclid Ave., Zone 15, structural engrs., Byers, Urban, Klug & Pittenger, 1740 E. 12 St., Zone 14, mech. and elect. engrs., Hargett-Yanda & Barber, 7016 Euclid Ave., Zone 3, civil engrs., and Wm. A. Strong, 2536 Euclid Ave., Zone 15, landscape engr., plans by Garfield, Harris, Schafer, Flynn & Williams, 1740 E. 12 St., Zone 14, jointly with Mayer, Whittelsey & Glass, 31 Union Square, New York, N. Y., two 10 story, 200 suites, 817 units housing units in Hough's area, between E. 75 and E. 79 Sts., Euclid and Chester Ave. **$10,500,000,** Barber, Magee & Hoffman, 1900 Euclid Ave., Zone 15, structural engrs., Byers, Urban, Klug & Pittenger, 1740 E. 12 St., Zone 14, mech. and elec. engrs., F. A. Pease Eng. Co., 3482 Lee Rd., Zone 20, civil engr., and Wm. A Strong, 2536 Euclid Ave., Zone 15, landscape engr. Bids this winter. CD 8/18.

▲ **O., Greenville**—SCHOOL—Bd. Educ., bond election Nov. 4, Junior High School, **$1,975,000.** CD 5/13/54.

▲ **O., Mt. Healthy**—SCHOOL—Mt. Healthy City School Dist., Compton Rd., bond election Nov. 4, school. **$1,510,000.** CD 11/13.

▲ **O., Toledo**—SCHOOLS—Oregon Local School Dist., 5721 Seaman Rd., Zone 5, bond election Nov. 4, two Junior High Schools. **$4,000,000.** CD 11/14/55.

▲ **Pa., Athol**—SCHOOL—Daniel Boone Joint School Dist., Athol, high school. **$2,165,000.**

▲ **Pa., University Park**—EDUCATION AND PSYCHOLOGY CENTER—General State Auth., 18 and Herr Sts., Harrisburg, plans by Thalheimer & Weitz, 1315 Walnut St., Phila., 2 story education and psychology center bldg. at Pennsylvania State University, **$1,900,000.** CD 9/28/56.

▲ **S.C., Union**—HOUSING—Union Housing Auth., Union, 300 housing units. **$2,500,000.**

▲ **Tex., College Station**—NUCLEAR SCIENCE CENTER—Texas A & M College, 1st phase nuclear science center **$826,000,** 2nd phase. **$2,174,000.** Convair Co. (Convair Nuclear Laboratories) Grants Lane, Fort Worth, Tex., consult. engr. CD 12/12.

▲ **Tex., Houston**—RESEARCH HOSPITAL—Bd. Texas State Hospitals & Special Schools, 4405 Lamar Blvd., Austin, plans by Pierce & Pierce, 2200 Welch St., research hospital on mental illness. **$2,000,000.** CD 1/8/57.

▲† **Tex., Houston**—HOSPITAL—U. S. Veterans Admin., Vermont Ave. between H & I Sts. N. W., Wash. 25, D. C., existing hospital bldg. expansion and modernization, **$3,000,000;** 5 story, bsmnt. new hospital bldg. to house out patient clinic facilities to be located, 2320 LaBranch St. **$500,000.**

▲ **Wis., Menomonie**—SCHOOL—Bd. Educ., Menomonie, Senior High School, **$1,134,000** or Senior-Junior High School, **$1,800,000,** CD 11/5/54.

COMMERCIAL BUILDINGS

▲ **Calif., Berkeley**—STUDENT DORMITORY—University Students Co-operative Assn., 2424 Ridge Rd., two 7 story wings, 99,740 sq. ft. student dormitory **$1,650,000.**

▲ **Calif., Carmel**—HOTEL—Western Hotels, Inc. Exec. Offices, Olympic Hotel, Seattle, Wash. 200 unit resort hotel. **$2,000,000.**

▲ **Calif., Santa Monica**—BOWLING ALLEY—Ralph Hirsch & Edward Tauber, 1702 Beverly Glen Blvd., Los Angeles, plans by William Rudolph, 622 S. Sycamore Ave., Pasadena, bowling alley, 234 Pico Blvd. **$1,000,000.**

▲ **Conn., Bethel**—HOUSES—Abner Rosenberg, Inwood Rd., Woodbridge, 150 houses, **$1,500,000.**

▲ **Conn., New Haven**—SHOPPING CENTER—Food Basket of New Haven, Inc., 875 N. High St., East Haven, shopping center, Amity Rd. **$5,000,000.**

▲ **Conn., Stamford**—APARTMENT—First Stamford Corp., 1222 Main St., plans by Philip Birnbaum, 12 E. 48 St., New York, N. Y. 11 story, 500 unit apartment, Bedford St. **$5,000,000.** CD 7/11.

▲ **Conn., Wallingford**—HOUSES—Abner Rosenberg, Inwood Rd., Woodbridge, 200 houses. **$2,000,000.**

▲ **D. C., Wash.**—LOFT—Page Communications Engineers, Inc., 3636 16th St. N. W., plans by Chatelain, Gauger & Nolan, 1632 K St. N. W., 3 story, concrete loft bldg. 1945 Wisconsin Ave. N. W. **$1,000,000.**

▲ **Ill., Chicago**—HEALTH CENTER—Northwestern University, W. S. Kerr, bus. mgr., Evanston, plans by Holabird, Root & Burgee, 180 N. Wabash St., Zone 1, 2 story, bsmnt., stone face Searle Health Center, **$1,000,000,** Bids about 9 months, CD 11/13/52.

▲ **Ill., Wheaton**—HOSPITAL—Stewards foundation of Chicago, 127 S. Wacker St., Chicago, Zone 6, plans by S. I. Oshiver, 1813 Walnut Rittenhouse Square, Phila., Pa., hospital, adjacent to home for aged. **$2,500,000.**

▲ **Mass., Framingham**—BUSINESS CENTER, etc.—Norman W. Farley, Sr., 881 Worcester Rd., business center, incl. restaurant, market and branch bank. **$2,500,000.**

▲ **Mich., Ann Arbor**—APARTMENTS—M. L. Scholnick & Seymour Dunitz Agency, 16573 Meyers, Detroit, plans by King & Lewis, 15790 Wyoming, Detroit, two 12 story apartments with underground parking garage. **$7,000,000.**

▲ **Mo., St. Louis County**—COUNTRY CLUB—Meadowbrook Country Club, Midland Blvd. and Sims Ave., Overland, Zone 14, plans by Meyer Loomstein, 1933 Woodson Rd., Overland, Zone 14, L-shaped main bldg., 47,000 sq. ft. country club, incl. outdoor swimming pool, 18-hole golf course, Kehr's Mill Rd. **$1,000,000.** Bids probably September-October 1958. CD 4/22.

▲ **N. H., Meredith**—HOUSES—Owner c/o B. C. Gallo, archt. 409 Chelsea St., East Boston, Mass. 100 frame brick houses and shopping center and medical clinic Rte 3. **$1,240,000.**

▲ **N. J., Hackensack**—APARTMENT—Dominick Ruta, Frank Vincent & Vito Petronella, 53 West Fort Lee Rd., Bogota, 7 story, 65 x 154 ft. 56 unit apartment, Grand Ave. **$1,000,000.**

▲ **N. J., Rockaway**—GARDEN APARTMENT—Gustav Hollstein, Woodstone Rd., 76 unit garden type apartment, Rte. 46. **$1,000,000.**

▲ **N. Y., Buffalo**—APARTMENT—Buffalo Phoenix Corp., 250 Summer St., 10-12 story apartment, Elmwood Ave. at Summer St. **$2,000,000.**

▲ **O., Barberton**—SHOPPING CENTER, etc.—Austin Lake Co., 187 5th St., plans by Richard Hawley Cutting & Assoc. 10550 Euclid Ave., Cleveland, Zone 6, 20 unit shopping center, Austin Development **$3,000,000.** 4 medical and professional centers, Austin Development, **$1,000,000.** CD 10/23.

▲ **O., Dayton**—BUSINESS ADMINISTRATION, etc.—University of Dayton, business administration bldg., **$1,000,000;** Activities Center, **$2,000,000.** CD 10/24/49.

▲ **O., Reynoldsburg**—SHOPPING CENTER—Ohio Federal Savings & Loan Assn., 24 E. Gay St., Columbus, plans by C. Melvin Frank Assoc., 1650 W. 5th Ave., Columbus, 150,000 sq. ft. Reynoldsburg Shopping Center, E. Main St. **$1,000,000.**

▲ **Tex., Amarillo**—HOSPITAL—St. Anthony's Hospital, 707 N. Polk St., plans by Jno. L. Hammon, Amarillo Bldg., Amarillo and O'Connell & Probst, 504 W. 7th St., Austin, 5 story St. Anthony Hospital addn. **$2,000,000.** Stewart & Townes, 719 Lipscomb, consult engrs. CD 2/4.

▲ **Tex., Houston**—HOTEL, etc.—Leon Green, 3106 Brazos St., plans by Bailey A. Swenson, 3106 Brazos and H. W. Linnstaedter, 3106 Brazos St., 4 story masonry motor hotel, **$1,000,000;** large circular swimming pool adjacent to motor hotel, **$80,000.**

▲ **Tex., Houston**—OFFICE, etc.—Humble Oil & Refining Co., 1216 Main St., plans by Welton Becket, 5657 Wilshire Blvd., Los Angeles, Calif., multi-story ultra-modern office, **$18,000,000;** parking and storage garage (to be connected with proposed office skyscraper by a tunnel) **$3,000,000.**

▲ **Wash., Seattle**—APARTMENT—1100 University, Inc., c/o G. Bolotin & Assocs., archts., 91 E. Pine St., 17 story, rein.-con. apartment. **$3,500,000.** Work to start in fall.

▲ **Wash., Seattle**—APARTMENT—Dr. W. S. Wienir, 1422 Seneca St., plans by D. N. McDonald & Assocs., 719 2 Ave., Zone 4, 8 story, rein.-con. apartment, 1201 Minor Ave. **$1,300,000.** Work to start in fall.

▲ **Ont., London**—SHOPPING CENTRE—Webb & Knapp (Canada) Ltd., 67 Yonge St., Toronto, plans by John Graham, 444 5th Ave., New York, N. Y., shopping centre, 4 story, bsmnt., 190x250 ft. main store, 35 other stores L-shaped, 1 story, incl. air-conditioning, enclosed mall, underground truck concourse, supermarket. **$10,000,000.** CD 2/4.

▲ **Ont., Toronto**—CRIPPLED CHILDREN'S CENTER—Ontario Society for Crippled Children, 95 College St., plans by Stanford & Wilson, 90 Eglinton Ave E., Crippled Childrens Center, 1 and 2 story, bsmnt., structural steel and rein.-con. frames, brick exterior walls and swimming pool. **$2,500,000.** Reicher, Bradstock & Assocs. Ltd., 612 Sherbourn St., consult. engrs.

INDUSTRIAL BUILDINGS

▲ **Ala., Fairfield**—STRIP PROCESSING EQUIPMENT—Tennessee Coal & Iron Div., United States Steel Corp., 71 Broadway, New York 6, N. Y., addn. to strip processing equipment.

▲ **California**—POWER PLANT—Pacific Gas & Electric Co., 245 Market St., San Francisco, 12,500 kw capacity geothermal power plant to utilize steam from geysers near Big Sulphur Creek, Sonoma and Lake Counties. **$2,000,000.**

▲ **Fla., St. Petersburg**—PLANT—St. Petersburg Electronics Communications, Inc., 72nd St. and 15 Ave. N., plant, **$2,000,000.**

▲ **Miss., Yazoo City**—PLANT—Mississippi Chemical Corp., Yazoo City, plant addn. for manufacture fertilizer. **$2,000,000.**

▲ **O., Cleveland**—MARINE TERMINAL—L. & M. Properties Co., c/o Lombardo Bros. Constr. Co., 3600 Ridge Rd., 14 story marine terminal on north side Eagle St. Bridge, **$5,000,000.**

▲ **Pa., Marcus Hook**—CHEMICAL PLANT—Sun Oil Co., 1608 Walnut St., Phila., Pa. and Olin Mathieson Chemical Corp., 460 Park Ave., New York, N. Y., chemical plant. **$1,500,000.** CD 4/25/56.

▲ **Pa., North Wales**—PLANT—Edwin J. Schoettle Co., 533 N. 11 St., Phila., plans by Vincent G. Kling, 917 Corinthian Ave., Phila., paper box plant, **$1,000,000.**

▲ **Tex., Houston**—PLANT—International Harvester Co., 5401 Washington Ave., branch plant, Motor Truck Div. **$1,000,000.**

▲ **Utah, Brigham City**—PLANT—Thiokol Chemical Corp., Brigham City, plant addn. **$1,000,000.** CD 4/24/56.

▲ **Que., Montreal**—PLANT—Kraft Foods Ltd., 8600 Devonshire Rd., completing plans, 1 story, windowless plant addn., receiving track and shipping track (siding). **$1,500,000.** T. Pringle & Sons Ltd., 4795 Sherbrooke St. W., consult. engrs. CD 6/5.

UNCLASSIFIED

▲ **O., Columbus**—RECREATION PARK—City, City Hall, recreation park, incl. 12 softball fields, football fields, 30 tennis courts, swimming pool and other facilities, site of Greenlawn Housing. **$1,000,000.** CD 11/29/54.

▲† **S. C., Charleston**—POLARIS MISSILE BASE—Dist. P. Wks. Officer, Sixth Naval Dist., Naval Base, polaris missile base for Navy. **$11,000,000.**

▲ **Tex., Houston**—STADIUM, etc.—Harris County Park Comn., Harris County, c/o Courthouse, voted bonds July 26, sports stadium, facilities, **$6,000,000;** coliseum (fat stock show), **$6,000,000;** hard paved parking area, **$3,000,000;** exposition and livestock facilities, **$2,000,000;** utilities, **$2,000,000.** CD 7/2.

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

STREETS AND ROADS
August 25 Connecticut

BUILDINGS—BA

R. I., **East Providence**—HOSPITAL—BA 8/28—Hattie Ide Chaffee Memorial Hospital, 891 Broadway E., 45 bed hospital, 200 Wampanaug Ave. $850,000. Plans deposit $50. Creer, Kent, Cruise & Aldrich, Industrial Bldg., Providence, archts. CD 4/22.

HEAVY CONSTRUCTION—LB & CA

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, Bids opened 8/5,

Suburban Excavators, Inc., 4 New Salem St., Wakefield, Mass., LB **$2,346,542**, est. $2,645,891, hy. and bridge constr. proposed Interstate Rd. 91. FA 1-91-1 (4) 48, Bernardston. CD 7/29.

BUILDINGS—LB & CA

▲ **Michael M. Iodice**, 151 Warren St., Watertown, Mass., Separate Contracts, **$1,000,000**, 17 APARTMENTS, Warren and Lexington Sts., WATERTOWN, MASS. John G. Danielson, 16 Court St., Boston, Mass., archt. CD 10/29.

▲ **Proctor Farm Estates**, Mountain Rd., West Hartford, Conn. Owner Builds. **$1,445,000**, 14 HOUSES, "Proctor Farm Estates", Mountain Rd., WEST HARTFORD, CONN. CD 7/14.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES
August 26 New Jersey

STREETS AND ROADS
August 26, 27 New Jersey August 28, New York

BUILDINGS—BA

▲ **N. J., Dover**—PLANT—BA 8/21—U. S. Dpt. Defense, Picatinny Arsenal, 185 x 384 ft., brick, concrete plant for manufacture and testing of atomic parts at Picatinny Arsenal, $1,000,000. Wigton Abbott Corp., 1225 S. Ave., Plainfield, engrs. CD 4/29/57.

HEAVY CONSTRUCTION—LB & CA

▲ **NEW YORK**—Dpt. P. Wks., The Gov. Alfred E. Smith State Office Bldg., Albany. Bids opened 8/7,

N. Y.—**Serafini Const. Co., Inc. & Dyer-Fitts Const. Co., Inc.**, P.O. Box 265, Binghamton, N. Y. LB **$956,276.50**, est. $1,205,000. (7 bidders) reconstr. 5.32 mi. section Rte. 7, near Sanitaria Springs extending northeastward to Belden, Broome Co.

N. Y.—**Johnson, Drake & Piper, Inc.**, 86 Trinity Pl., New York, N. Y. LB **$9,330,415.00**, est. $11,788,000 (5 bidders) six-lane divided concrete section Cross Bronx Expressway 0.6 mi. between Walton and Clay Aves., Bronx Co.

N. Y.—**William Higgins & Sons, Inc.**, 143 Perry St., Buffalo, N. Y. LB **$1,921,242.25**, est. $2,335,000 constr. 0.39 mi. section Broadway Arterial Hy. (Rte 130) near east city line in Buffalo, incl. grade separation structures to carry four-lane divided concrete hy. under seven tracks of New York Central R.R. and two tracks of Delaware, Lackawanna and Western R.R., Erie Co.

N. Y.—**H. L. Baughman, Inc.**, 1240 Jefferson Rd., Rochester 23, N. Y. LB **$1,035,938.55**, est. $1,120,000 (4 bidders) reconstr. 1.51 mi. section Rte. 12E, Chaumont, beginning near west village line and extending eastward on new location south of present road to point near Point Salubrious Rd., incl. bridge over Chaumont River, Jefferson Co.

N. Y.—**Ferguson & Edmondson Co.**, 407 Keystone Bldg., Pittsburgh 22, Pa. LB **$3,003,522.89**, est. $3,747,000 (6 bidders) relocation 5.12 mi. New York Central and Erie railroad tracks on eastern outskirts Niagara Falls, structures to carry double tracks over Niagara Falls Blvd., Bergholtz Rd., Walmore Rd., Lockport Rd. and Bergholtz Creek incl. 0.94 mi. intersection roads, Niagara Co.

N. Y.—**Sheridan Const. Corp.**, 3580 Sheridan Dr., Buffalo 26, N. Y. LB **$154,838.02**, est. $192,000 (5 bidders) constr. 1.02 mi. extension Robinson Rd. (County Rd. 123) from present eastern terminus at Transit Rd. (Rte. 78) eastward on new location to Beattie Ave. (County Rd. 85) joining there with Dysinger Rd., Niagara Co.

N. Y.—**E. G. DeLia & Sons Const., Corp.**, 38 Campion Rd., New Hartford, N. Y. LB **$975,886.25**, est. $1,211,000 (10 bidders) reconstr. 2.27 mi. section Rte. 49 and 0.66 mi. access roads, starting distance north Oriskany at county road running from Oriskany to Rte. 49 and extending eastward on new location south of present route to western terminus of interchange constr. now under way in vicinity Carey Corners south of Marcy, Oneida Co.

N. Y.—**County Asphalt, Inc.**, 129 Main St., Tarrytown, N. Y. LB **$444,560.00**, est. $458,000 (3 bidders) resurf. 4.51 mi. section Rte. 17 starting in Southfields and extending northward thru Arden to Harriman, Orange Co.

N. Y.—**Louis Argenio, Inc.**, Windsor H'way MD, Newburgh, N. Y. LB **$164,440.00**, est. $168,000 (2 bidders) resurf. 2.84 mi. section Rte. 9W, south of Fostertown Rd. about 1 mi. north of Newburgh City line extending northward thru Middle Hope to point north of Oak St., Orange Co.

N. Y.—**West Shore Concrete Co., Inc.**, Suffern, N. Y., LB **$1,332,675.00**, est. $1,338,000 (1 bidder) reconstr. 3.81 mi. section Rte. 293, starting at Rte. 9W intersection and extending southwestward to Mine Lake, Orange Co.

N. Y.—**Lizza & Sons, Inc.**, 152 South St., Oyster Bay, N. Y. LB **$271,000**. est. $350,000 (4 bidders) resurf. 3.31 mi. section Rte. 25 starting at Rte. 25A intersection in Calverton and extending to County Rd. 58, Suffolk Co.

N.Y.—**Merritt Chapman & Scott Corp.**, 260 Madison Ave., New York 16, N. Y. LB **$7,256,400.05**. est. $9,910,000. (9 bidders) constr. 8.05 mi./section for-lane divided' Rte. 17 Expressway, starting about 3,000 ft. northwest of Rte. 17B intersection north of Monticello and extending northward on new location to point about 1,000 ft. north of present intersection of Rte. 17 and County Rd. 71 near Ferndale incl. constr. 0.06 mi. access roads, six highway grade separation structures and 3 bridges, addnl. truck climbing-lane along portions of route and 8.97 mi. shoulder work on Liberty By-pass constr. job under constr. to north. Sullivan Co.

N. Y.—**William Higgins & Sons, Inc.**, 143 Perry St., Buffalo, N. Y. LB **$1,921,242.25**. est. $2,335,000. (4 bidders) 0.39 mi. (Rte. 130) City of Buffalo: Broadway Arterial Highway (N.Y.C.R.R. & D.L.'W.R.R.) Grade Separations. Erie County.

N. Y.—**Rockaway Blvd. Wrecking & Lumber Co. Inc.**, 596 Rockaway Tunrk. Lawrence, N. Y., LB **$589,000**. est. $912,000. (6 bidders) 1.05 miles Interstate Route Conn. No. 512 Gowanus Expressway Cont. 1 Kings Co.

N. Y.—**The Whiting-Turner Contg. Co.**, 6229 Charles St. Ave., Baltimore 12, Md. LB **$176,405**, est. $201,471.43 Lock 16 Erie Canal Near St. Johnsville, Montgomery Co.

N.Y.—**Allen N. Spooner & Son. Inc.** 143 Liberty St., New York 6, N. Y. LB **$293,868**. est. $382,000. Harlem River Drive (Cont. 141B: E. 133rd St. to E. 135th St. 0.08 Mile New York Co. CD 7/11.

▲ **Erie County Water Auth.**, Ellicott Square Bldg., Buffalo, N. Y., rejected bids June 19, intake tunnel for Sturgeon Point Water Treatment Plant, town of Evans, BUFFALO, N. Y. LB **$1,122,000.** CD 6/24, under LB.

Santoro Constr. Co., 68 Buell Ave., Buffalo 11, N. Y., Owner Builds, **$800,000**, 48-lane 38,000 sq. ft. BOWLING ALLEY, Camp Rd. between Southwestern Blvd. and Thruway, HAMBURG, N. Y.

▲ **PENNSYLVANIA**—Pa. Hys. Dpt., 506 North Office Bldg., Harrisburg,

J. H. Beers, Inc., R. D. 2, Bangor, Pa. CA **$1,699,756** constr. 13,223 ft. crushed aggreg. base with bit. surf. 22 ft. wide. T.R. 29-209, Mauch Chunk Twp., Carbon Co. Bids July 11, awarded Aug. 4. CD 7/16. under LB.

▲ **PENNSYLVANIA**—Pa. Hy. & Bridge Auth., 506 North Office Bldg., Harrisburg,

rejected bids July 25, 22,598 ft. divided Hy. c. conc. variable in width each side divisor 2 parallel bridges, 7 graded separations, a section Erie Thruway (Proj. 809-1) FAI North East Twp., Erie Co. LB **$4,778,715**. will readvertise. CD 7/29, under LB.

▲† **Phoenix Bridge Co., subsidiary of Barium Steel Corp.**, 25 Broad St., New York 4, N. Y. CA **$2,800,000**. fabricating and erecting steel for Woodrow Wilson Memorial Bridge over Potomac River, MARYLAND and VIRGINIA. Bureau P. Rds., Dpt. Commerce, 1440 Columbia Pike, Arlington, Va. Howard, Needles, Tammen & Bergendoff, 99 Church St., New York 7, N. Y., engrs. Bids June 30. CD 6/27.

▲ **McLean Constr. Co.**, Fidelity Bldg., Baltimore, Md., LB **$1,316,871** (7 bidders), Cargo Pier and support Facilities at Hawkins Point, Contr. MPA-HP-1, BALTIMORE, MD. Maryland Port Auth., Director of Engineering Administration Office, 1040 Matheson Bldg., Baltimore, Md. Bids Aug. 4. CD 7/21.

BUILDINGS—LB & CA

▲ **Vermilya-Brown Co., Inc.**, 100 E. 42 St., New York 17, N. Y., CA, 2 story, bsmnt. ADMINISTRATIVE BLDG. addn. and 14 story elevator tower at site, NEW YORK, N. Y. Neurological Institute-Presbyterian Hospital, Fort Washington Ave. and 168 St., New York, N. Y. Rogers & Butler, 219 E. 44th St., New York 17, N. Y., archts.

▲ **Whitehouse Development Corp.**, Flemington Bank Bldg., Flemington, N. J. Own Forces, **$1,000,000**. 50 HOUSES, Burdett tract, Rte. 22, Readington Twp., WHITE HOUSE, N. J.

▲ **Lindy Bros.**, Lansdale, Pa. CA **$2,000,000**. RESIDENTIAL DEVELOPMENT, LANSDALE, PA. Ingelwood Manor, 1022 Pioneer Rd., Lansdale, Pa.

▲ **Independence Constr. Co.**, 800 Baltimore Rd., Rockville, Md., Owner Builds, **$4,500,000**, 300 HOME DEVELOPMENT, GREENBELT, MD. John D'Epagnier, 1004 Ripley St., Silver Springs, Md., archt.

J. **Roland Dashiell & Sons**, Salisbury, Md. CA **$829,800**, SCHOOL, SELBYVILLE, DEL. Selbyville School Dist. No. 32, Selbyville, Del. CD 11/12.

SOUTH

STATE HIGHWAY LETTINGS

STREETS AND ROADS
August 20 Louisiana August 22 Kentucky

BUILDINGS—BA

▲ **Ala., Mobile**—BANK, etc.—BA 8/26—American National Bank & Trust Co., 8 St. Joseph St., 2 story, penthouse, steel, granite, masonry bank and office bldg. $1,000,000. Plans deposit $50. Hedrick & Stanley, 1200 T&P Bldg., Fort Worth, Tex., archts. CD 6/10.

HEAVY CONSTRUCTION—LB & CA

▲ **VIRGINIA**—Dpt. Hys., Central Hy. Office Bldg., 1221 E. Broad St., Richmond, Bids opened 7/25,

Va.—**Columbus Contractors**, Whiteville, N. C. LB **$914,117**. twin bridges over Beaver Pond Creek-Fontaine Creek and A.C.L. R.R. siding overpass bridges for secondary Rtes. 631, 629 and 639 and service road bridges at Beaver Pond and Fontaine Creeks, Rte. 95. State Proj. 0095-040-012-G1-017-018-020-021-022-023-030-031, Old State Proj. 8040-12, G1 17-18-20, 21-22-23, 30-21, Fed. Proj. I-95 1 (18) 00, Greensville Co.;

Va.—**E. W. Woolfolk**, Bowling Green, Va. LB **$149,353**. 182 ft. bridge over Pamunkey Creek and 3.54 mi grade, drain, stabilizing and calcium chloride treatment from Monrovia to Lahore, Orange Co. CD 7/9, under Streets and Roads;

Va.—**R. H. Rose**, 49 Towana Rd., Box 8508 Richmond, Va. LB **$160,857**. 190 ft. bridge over Allens Creek and 5.36 mi. grade, drain, stabilizing and calcium chloride treatment from Phillis to Rte. 58 north of Antlers, Rte. 678, Mecklenburg Co. CD 7/9, under Streets and Roads.

▲ **GEORGIA**—State Hy. Dpt., No. 2 Capitol Sq., Atlanta, Bids opened 8/1,

Ga.—**E. A. Hudson & Sons**, 1730 Hollywood Rd., Bolton, Ga., LB **$2,997,224**, 4 lane grading, paving 2 double bridges, exten. existing double hy. grade separation structures 12.779 mi. Rome-Cartersville Rd., State Rte. 20; beginning at Floyd Co. line and extending east on relocation to State Rte. 3, U. S. Rte. 41, at point approx. 6 mi. northwest of Cartersville, Fed. Aid. Proj. F-012-1 (6), Bartow Co.;

Ga.—**MacDougald Constr. Co.**, 1625 Northside Dr. NW, Box 1655, Atlanta, Ga., LB **$2,248,910**, graded and paved frontage roads, interchanges, new northbound lanes on Portions Atlanta-Macon 4 lane highway, State Rte. 3, U. S. 41 beginning at Fulton-Clayton Co. line and extending south approx. 2.463 mi. including interchange structures at State Rte. 85 and at Farmers Market access road, grading, paving 0.804 mi. State Rte. 85, grading, paving 0.941 mi. Farmers Market Access Road, Fed. Aid. Proj. F-1-401-2 (12) and F-074-2 (7) Clayton Co.;

Ga.—**Ocmulgee Constr. Co.**, McRae, Ga., LB **$645,881**, wid'n., surf. 17.537 mi. Commerce-Lavonia Rd., State Rte. 59, beginning at Banks Co. line approx. 7 mi. northeast of Commerce and extending northeast to Lavonia, excepting approx. 1 mi. at Carnesville, Fed. Aid Proj., DF-052-2 (2), Franklin Co. CD 7/25.

▲ **FLORIDA**—State Hy. Dpt., Tallahassee,

Industrial Const. Co., Box 2307, Fort Lauderdale, Fla. CA **$1,593,270** (7 bidders) bridge over Lake Monroe, FAI I-4-2 (3) 122 Job 7911 405 SR 400, Volusia Co., Bids June 26, awarded Aug. 1, CD 7/3, under LB.

▲† **B. B. McCormick & Son, Inc.**, Jacksonville Beach, Fla. CA **$3,597,408**. extension Runway 18L-36 R, U. S. Naval Air Station, NBy 10242 Cecil Field, JACKSONVILLE, FLA. Dist. P. Wks. Office, 6th Naval Dist., Bldg. 13, Charleston, S. C. CD 7/2, under LB.

BUILDINGS—LB & CA

▲† **Eugene Simpson & Brother**, 300 Montgomery Ave., Alexandria, Va. LB **$3,861,017** (9 bidders), constr. YOUTH CORRECTIONAL CENTER BLDGS., underground utilities and site work, LORTON, VA. D. C. Govt., Dpt. Bldgs. & Grounds, Room 404, 499 Pa. Ave. N. W., Wash., D. C. Bids July 31. CD 7/25.

▲ **Vulcan-Cincinnati, Inc.**, 120 Sycamore St., Cincinnati 2, O. CA Est. **$2,000,000**. design and construct manufacture fertilizer PLANT addn., YAZOO CITY, MISS. Mississippi Chemical Corp., Yazoo City, Miss. CD 7/31.

▲ **McMichael Constr. Co.**, 842 Hope St., Shreveport, La. LB **$2,266,444**. 3 story HIGH SCHOOL, SHREVEPORT, LA. Caddo Parish School Bd., Court House, Shreveport, La. Bids Aug. 5. CD 7/22.

▲ **Gilson Constr. Co.**, Northern Belt Line, Lexington, Ky., LB **$1,076,800**, four DORMITORIES, LEXINGTON, KY. College of the Bible, S. Limestone St., Lexington, Ky. Bids Aug. 5. CD 6/25.

† **J. A. Jones Constr. Co.**, 311 Church St., Nashville, Tenn. CA **$850,000**. SPECIAL ACTIVITIES BLDG. No. 107 and alts. to BLDGS. 1 and 2, at Veterans Admin. NP Hospital, MURFREESBORO, TENN. Veterans Admin., Munitions Bldg., Wash., D. C. Bids July 22, awarded Aug. 1. CD 7/28, under LB.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

August 19 Indiana August 22 Wisconsin-Minnesota

STREETS AND ROADS

August 19 Indiana August 20 Michigan

▲ **Ill., Chicago**—BA 9/5—City, City Hall, N. W. Expressway grade separation at Chicago Ave., 4 span, 286 ft. steel concrete, with cont. steel I-beam girders, concrete substruc., concrete deck Proj. 1-02-2 (61). $1,000,000. CD 6/10/57.

BUILDINGS—BA

▲ **Ill., Granite City**—HOSPITAL WING ADDN.—BA 9/10—St. Elizabeth's Hospital, Sisters of Divine Providence, 2100 Madison Ave., 6 story, brick, steel, concrete, etc. wing addn. $1,500,000. Gabriel & Dulgeroff, 18394 Delmar, archts.

HEAVY CONSTRUCTION—LB & CA

INDIANA—State Hy. Dpt., John Peters, chn., State House Annex, Indianapolis,

L. P. Cavett Co., 511 Shepard Ave., Lockland, O., CA **$829,265**, bit. pavement with aggregate base, Contr. R-4423, S-33 (9, 10, 11, 14, 15), Switzerland Co. Bids May 27. CD 6/5, under LB.

BUILDINGS—LB & CA

▲ **Hunkin-Conkey Constr. Co.**, 1740 E. 12 St., Cleveland, O., and **Frazier-Davis Constr. Co.**, 1319 Macklind St., St. Louis, Mo., CA **$3,000,000**. shaft for salt mine on Whiskey Island, CLEVELAND, O. International Salt Co., Scranton Life Bldg., Scranton 3, Pa. Awarded July 21. CD 6/25.

▲ **DiCarlo Mason & Bldg. Co.**, 5576 Mayfield Rd., Cleveland 24, O. Own Forces, **$1,200,000**, 30 ranch and split level HOMES, Kingswood Dr., MAYFIELD HEIGHTS, O. Geo. E. Rudolph, 1514 Parker Dr., Cleveland, O., archt.

▲ **Mercury Bldrs.**, 761 S. Harlem Ave., Forest Park, Ill., LB **$1,580,086**. 1, 2 and 4 story, 104,000 sq. ft. INFIRMARY, State Rd. 55 near CROWN POINT, IND., Lake Co. Bd. Comn., Crown Point, Ind. Bids June 30. CD 6/24.

▲ **H. A. Caron & Co. Inc.**, 7327 North Ave., River Forest, Ill., own forces, **$6,800,000**. 340 HOMES, Springhill Subd., ROSELLE, ILL., Ray Basso & Assocs., 1543 N. Clinton Pl., River Forest, Ill.

▲ **Gilbert & Wolf, Inc.**, 6046 W. 63 St., Chicago, Ill., Own Forces. Southfield SHOPPING CENTER, 87th and Harlem, BRIDGEVIEW, ILL. **$2,000,000**. A. F. Del Bianco & Assocs., 5501 W. Irving Park Rd., Chicago, Ill., archts.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

August 19 Iowa August 22 Minnesota

August 28 Missouri

STREETS AND ROADS

August 21 Kansas August 28 Missouri

BUILDINGS—BA

▲ **Iowa, Ottumwa**—OFFICES, DORMITORIES, etc.—BA 8/27—Ottumwa Heights College, Sisters of the Humility of Mary, Naval Air Base, central offices, dormitories, etc. $2,500,000. Plans deposit $100. Leo A. Daly Co., 633 Insurance Bldg., Omaha, Neb., archts. CD 12/13.

▲ **Minn., Robbinsdale**—SCHOOL—BA 8/27—Independent School Dist. No. 281, Robbinsdale, Carl Sandburg Junior High School, Golden Valley south of Medicine Lake Rd. between Douglas Dr. and St. Croix Ave. $2,200,000. Bissell & Belair, 1111 Nicollet Ave., Minneapolis, archts.

▲ **Tex., Kermit**—SCHOOL—BA 9/4—Kermit, Ind. School Dist., elementary school, high school unit, bus garage, admin. bldg. $1,250,000. Atcheson, Atikinson & Fox, Sanford Bldg., Lubbock, archts. CD 4/30.

HEAVY CONSTRUCTION—LB & CA

▲† **A. Hedenburg & Co.**, 4621 East Superior St., Duluth, Minn., CA **$4,176,841**, SM-73 (Goose) facilities at Duluth Air Force Base, ENG-21-081-58-26, DULUTH, MINN. U.S. Eng., 1217 Post Office & Custom House, St. Paul, Minn. Bids July 29. CD 8/2, under LB.

▲ **R. H. Fulton & Co.**, 2323 Erskine Rd., Lubbock, Tex. CA Est. **$10,250,000**. 205 mi. 36 in. gas main near Meade, Kan. CA **$680,000**. 21 mi. 26 in. gas line from Fitch Northward, TEXAS-OKLAHOMA and KANSAS. Natural Gas Pipeline Co. of America, 1st National Bank Bldg., Amarillo, Tex. CD 6/17/55.

▲ **Wohlfield Constr. Co.**, 2670 Lombardy Lane, Dallas, Tex. CA **$1,203,176**. general constr. livestock coliseum, DALLAS, TEX. City, City Hall, Dallas, Tex. Bids July 21. CD 7/30, under LB.

BUILDINGS—LB & CA

O. E. Madsen & Son, Inc., Sexton Bldg., Minneapolis, Minn., CA **$850,800**, LABORATORY SCHOOL, at Mankato State College, MANKATO, MINN. State Dpt. of Admin., 19 State Capitol, St. Paul, Minn. Bids July 17. CD 7/22, under LB.

▲ **Henry C. Beck Builders**, First National Bank Bldg., Dallas, Tex., CA **$14,331,000**, National Animal Disease LABORATORY for Dpt. Agriculture, AMES, IOWA, General Services Admin., 18 and F Sts. N.W., Wash. 25, D. C. Bids July 18, awarded Aug. 4. CD 7/22, under LB.

▲ **Linbeck Constr. Co.**, Box 13007, Houston, Tex. CA **$2,030,500**. Meyerland Area JUNIOR HIGH SCHOOL, HOUSTON, TEX. Houston Ind. School Dist., 1300 Capitol St., Houston, Tex. Bids July 23. CD 8/6, under LB.

▲ **Manhattan Constr. Co.**, 1811 Crawford, Houston, Tex. CA Est. **$6,000,000**. 13 story OFFICE and addns., HOUSTON, TEX. Texas Co., 720 San Jacinto St., Houston, Tex. Bids July 15. CD 6/24.

▲ **Hitz Constr. Co.**, 2111 4th Ave. N., Billings, Mont. LB **$1,038,946** general constr. 1 and 2 story, 103,000 sq. ft. poured concrete and solid masonry HIGH SCHOOL, BILLINGS, MONT. School Dist. No. 2 2911 4th Ave. N., Billings, Mont. Bids July 29. CD 7/1.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

September 3 California

STREETS AND ROADS

August 21 Nevada

August 27, September 3, 4, 11 California

▲ **Idaho, Idaho Falls**—BA 8/26—City, City Hall, sewage treatment plant (450,000), imprv. sewerage sys. Total est. $1,600,000. CD 12/27.

BUILDINGS—BA

▲ **Calif., Los Angeles**—SCIENCE—BA 9/11—State Div. Architecture, 1100 S. Grand Ave., two 3 story each 70,000 sq. ft. floor area and 1 with 23,700 sq. ft. bsmnt. science classrooms bldgs at San Fernando Valley State College. Northridge, W. O. 4005GC-59 $3,958,050. Plans deposit $100. CD 7/25/57.

HEAVY CONSTRUCTION—LB & CA

Tolboe Constr. Co., 250 E. 10th St., Provo, Utah, CA **$964,453**. sewage treatment plant, OREM, UTAH. City, City Hall, Orem, Utah. Fuhriman, Hodson & Assoc., 292 W. Center St., Provo, Utah, engrs. Bids July 1. CD 3/4/57.

▲ **WASHINGTON**—State Hy. Comn., Olympia, Bids opened 8/5,

Wash.—**Scheumann & Johnson**, Lloyd Bldg., Seattle 1, Wash. LB **$964,291** (14 bidders) 7 rein.-con. main piers for high-level bridge across Lake Wash. Ship canal on Seattle Freeway Rte., King Co;

Wash.—**D. M. Madden**, 3010 E. 163 St., Seattle 55, Wash. LB **$88,833**, 2 rein.-con. bridges for F&M St. overcrossings in Auburn on 0.021 mi. Primary St. Hy. 2. FAP No. F-046-1 (9), King Co. CD 7/23.

▲ **OREGON**—Oregon Hy. Comn., Hy. Bldg., Salem,

Ore.—**Rogers Constr. Co.**, 11760 N.E. Glisan St., Portland, Ore. CA **$683,158**. (13 bidders), grading 2.09 mi. The Dalles California Hy., FAP U-205 (9), Klamath Co.;

Ore.—**Roy L. Houck & Son**, 1585 N. 20 St., Salem, Ore. CA **$652,057**. (6 bidders), grading 3.74 mi. Ontario-Idaho line section of Old Oregon Trail Hy., FAIP 1-82-8 (6) 372, Malheur Co.;

Ore.—**Morrison-Knudsen Co.**, 319 Broadway, Boise, Idaho. CA **$1,416,815**. (8 bidders), grading 7.25 mi., stone base and oiling 3.51 mi. Glover-Perry section Old Grand total $2,752,048. Bids July 7, awarded July 31. CD 7/16, under LB.

BUILDINGS—LB & CA

▲ **J. I. Baines Constr. Co.**, Central Bldg., Seattle 4, Wash., LB **$1,147,000** (6 bidders), general contract enlarge and alter Franklin High SCHOOL, SEATTLE, WASH. Seattle School Bd., 815 4 Ave. N., Seattle, Wash. Bids Aug. 5. CD 6/30.

▲ **Sound Constr. & Eng. Co.**, 1300 Aloha St., Seattle, Wash., CA **$2,364,036**. general contract North Seattle HIGH SCHOOL, N. 135 St. and Ashworth Ave., SEATTLE, WASH., School Dist. No. 1, 815 4 Ave. N., Seattle, Wash. Bids July 22. CD 7/25, under LB;
Boyker P. & H. Co., Inc., 2627 Eastlake Ave., Seattle, Wash., CA **$684,300**. (6 bidders), mechanical contract (Seattle, Wash.).

▲ **John Kreedman**, 9350 Wilshire Blvd., Los Angeles, Calif. CA **$1,800,000**. 4 story, concrete OFFICE BLDG., 9570 Wilshire Blvd., BEVERLY HILLS, CALIF. Kreebert Camden Co., c/o Welton Becket & Assoc., archts., 5657 Wilshire Blvd., Los Angeles, Calif.

James E. Roberts Constr. Co., 4444 Piedmont Ave., Oakland, Calif. CA **$895,800**. Tice HIGH SCHOOL, LAFAYETTE, CALIF. Acalanes Union High School, c/o supt., 1212 Pleasant Hill Rd., Lafayette, Calif. Awarded July 31. CD 7/31, under LB.

▲ **Pozzo Constr. Co.**, 2403 Riverside Dr., Los Angeles, Calif. CA **$1,254,500**. rein.-con. CHEMISTRY and BIOLOGY BLDG., LOS ANGELES, CALIF. Occidental College, 1600 Campus Rd., Los Angeles, Calif. Bids June 19. CD 6/3.

▲ **Carl N. Swenson, Inc.**, 1095 Stockton Ave., San Jose, Calif. LB **$1,572,000** (4 bidders) general constr. 4 story, 42,000 sq. ft. rein.-con. HEALTH BLDG. with penthouse and 3 story, 85,800 sq. ft. rein.-con. ART BLDG. at San Jose State College, W.O. 4005GC-39 and W.O. 4005GC-30, SAN JOSE, CALIF. State Div. Architecture, 1120 N. St., Sacramento, Calif. Bids Aug. 5. CD 7/11.

Leonard Semas & Co., 2885 Homestead Rd., Santa Clara, Calif. CA **$878,520**. unit 2, Emil Buscher HIGH SCHOOL, SANTA CLARA, CALIF. Santa Clara High School Dist., c/o Supt., 551 Jackson St., Santa Clara, Calif. O. B. Christensen, 725 Kifer Rd., Santa Clara, Calif., engr. CD 2/10.

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

STREETS AND ROADS

August 20 Ontario August 21 British Columbia

September 3 Ontario

▲ **Que., Montreal**—RUNWAY—BA 8/19—Dpt. Transport, Hunter Bldg., Ottawa, Ont., constr. 200 ft. x 10,000 ft. paved runway and taxiway, at Montreal Airport, Dorval. $2,200,000. Plans deposit $25. CD 5/29.

HEAVY CONSTRUCTION—LB & CA

▲ **BRITISH COLUMBIA**—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., Bids opened July 29,

John Laing & Son (Canada) Ltd., 640 W. Hastings St., Vancouver, B. C. LB **$1,962,882**, est. $2,000,000 (17 bidders) grading, culverts and sub-base Mile 0 to Mile 7.7, Trans-Canada Hy Mount Revelstoke National Park, Revelstoke. CD 7/9.

▲ **BRITISH COLUMBIA**—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont.,

General Constr. Co., Ltd., Granville Island, Vancouver, B. C. CA **$1,371,889** (3 bidders) grading, culverts and retaining walls, Mile 23.3 to Mile 27.3 Trans-Canada Hy., Glacier National Park, Glacier. Bids June 26. CD 7/18.

▲ **NOVA SCOTIA**—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., Bids opened 7/29,

Chisholm Constr. Co., Ltd., College St., Antigonish, N. S. LB **$1,056,820** (3 bidders) INGONISH, N. S. grading, culverts, base course 23.5 mi. Cabot Trail, Mile 15 to Mile 21 and Mile 22.5 to Mile 23.5, Contr. 26-58-CBH, Cape Breton Highlands National Park, Ingonish. CD 7/17.

BUILDINGS—LB & CA

▲ **Edmonton Constr. Co., Ltd.**, 9304 Jasper Ave., Edmonton, Alta. LB **$1,949,560**, (4 bidders) constr. of frame BUILDINGS, FORT SIMPSON, N.W.T. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont.

Shore & Horwitz Constr. Co., Ltd., 330 McArthur Rd., Ottawa, Ont., LB **$937,880**, est. $350,000 (18 bidders) 1 story, partial bsmnt., approx. 146 x 260 ft. concrete foundation and frame, brick walls, CAFETERIA BUILDING, OTTAWA, ONT. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., Bids July 31. CD 6/30.

▲ **Noel Constr. Ltd.; Bourret Constr.; Louvic Constr.**, Office on Constr. Job, Suzanne St., Montreal, Que. Owner Builds. **$1,000,000**. 58 BUNGALOWS, Suzanne St., north of Brisebois St., St. Vincent de Paul, Montreal suburb, MONTREAL, QUE.

Adelard Jacques, Ltee, 526 Galt St. W., Sherbrooke, Que. CA est. **$180,000** 1 story, 108 x 186 ft. rein.-con. brick BOTTLING PLANT, SHERBROOKE, QUE. Lucien Lavigne Ltee., 1700 King St. W., Sherbrooke, Que. Albert Paulin, 1115 Prospect St., Sherbrooke, Que., archt. Awarded July 24.

▲ **Hector Auger Ltee.**, 491 Bonaventure St., Three Rivers, Que., CA **$1,000,000**, PROVINCIAL JAIL, THREE RIVERS, QUE. Provincial Wks. Dpt., Parliament Bldgs., Quebec City, Que. A. D. Gascon, 2409 Place de Vaudreuil, Three Rivers, Que., archt. CD 1/6.

Page Equipment & Constr. Co., Ltd., 135 Blvd. Normand, Three Rivers, Que., CA **$800,000**, TECHNICAL SCHOOL for mechanics, THREE RIVERS, QUE. Technical School of Three Rivers, Three Rivers, Que. Denoncourt & Denoncourt, 1240 Royale St., Three Rivers, Que., archts. Awarded July 28. CD 4/30, under Provincial Dpt. Youth & Social Welfare, Parliament Bldgs.,Quebec City, Que., as owner.

AMERICANS ABROAD

HEAVY CONSTRUCTION—LB & CA

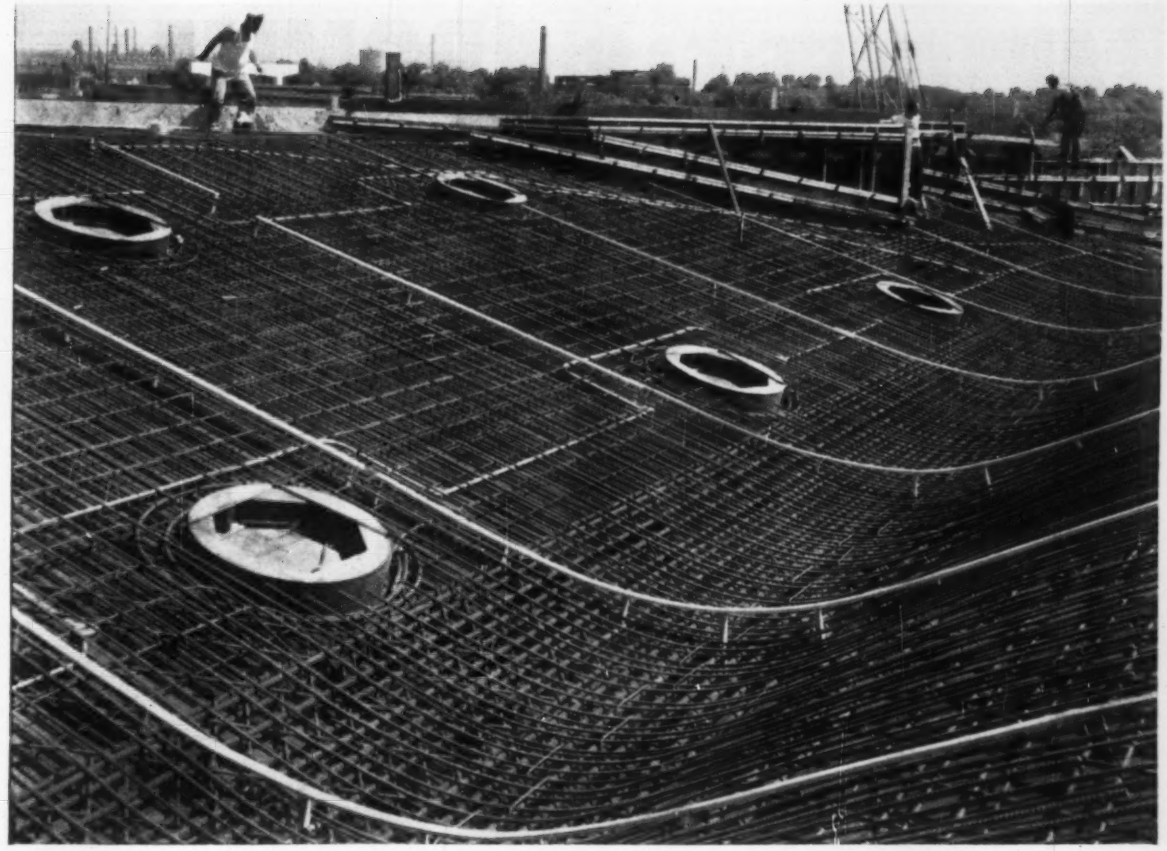
▲† **McDonough Constr. Co. of Florida**, 8247 S. Dixie Hy., Miami, Fla., U.S.A., CA **$2,411,054**, constr. buildings and related facilities, Kindley Air Force Base, ENG-3-347-58-10 (CY-58), BERMUDA. U. S. Eng., Eastern Ocean Dist., New York 13, N. Y., U.S.A. Bids May 27. CD 6/5, under LB.

FOREIGN

HEAVY CONSTRUCTION—LB & CA

▲ **Thomas McInerney & Sons**, Scariff, Eire. CA Est. **$2,000,000**. 10,000 lin. ft. runway at Shannon Airport, SHANNON, EIRE. Govt. of Eire, Dublin, Eire.

(Proposal Advertisement see pp. 112 to 114)



(USS) DI-LOK Concrete Reinforcing Bars put muscle into new shell roof!

USS DI-LOK Concrete Reinforcing Bars were recently used in an unusual shell-type roof.

The Chicago District of U. S. Steel Supply furnished 688 tons of fabricated concrete reinforcing bars and 37,000 square feet of welded wire fabric for this project. The roof, which is over a gymnasium, is a thin concrete shell measuring 4½" thick at the crown of the vault.

USS DI-LOK Reinforcing Bars have uniformly spaced diamond-locking deformations for positive anchorage—anchorage that supplements the bond between concrete and steel.

What's more, the size, position, and spacing of the deformations on USS DI-LOK Concrete Reinforcing Bars are designed to provide a practically constant section. In short, there are *no* alternately weak and strong portions sufficiently different to affect design calculations.

This gymnasium is part of the St. Francis de Sales High School, one of the new schools recently constructed in the Chicago area. Architects were Belli and Belli, and the general contractor was Fred Berglund and Son, Inc., both of Chicago, Illinois.

Remember, you can save time and money, and build better and faster with USS DI-LOK Concrete Reinforcing Bars. They're used in all types of concrete construction. For more information, call the U. S. Steel Supply steel service center nearest you.

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U. S. Steel Supply Division of (USS) United States Steel

Steel Service Centers Coast to Coast • Mailing Address: P. O. Box 1099, Dept. M8, Chicago 90, Ill. • General Offices: 208 So. La Salle St., Chicago 4, Ill.

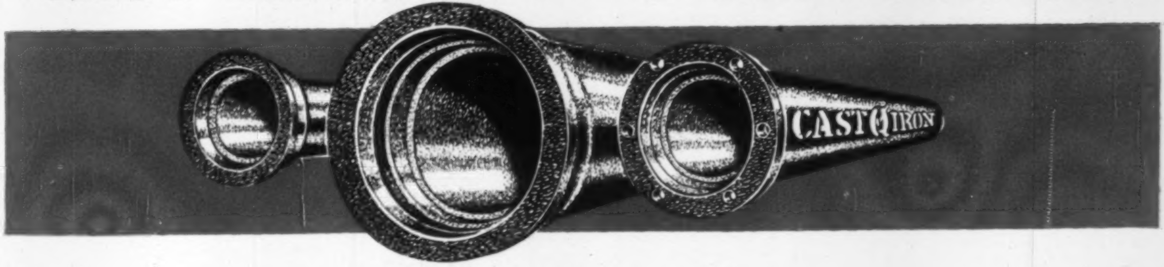
ANY PIPE CAN PROMISE...

▲ **50 YEARS YOUNG!** This 36" Cast Iron Pipe feeder main was installed in 1907. Taken up in 1954 because of relocation project, it was relaid in 1956 for a bypass line around new highway interchange.

◀ Close-up of section of above pipe 1,958 feet of which was cleaned and reused

MODERNIZED cast iron

CAST IRON PIPE PERFORMS!



What other pipe offers you LONG LIFE + STRENGTH + HIGH FLOW CAPACITY?

Don't doubt when you buy pipe—specify cast iron and be sure of...

1. LONG LIFE ...
   42 North American cities are still using cast iron water mains laid 100 years and more ago. Hundreds more have passed the 50 year mark.
2. BEAM STRENGTH ...
   Cast Iron Pipe is inherently tough ... stands up under heavy traffic load, soil displacement and disturbance.
3. HIGH FLOW CAPACITY ...
   Cement lined cast iron pipe and fittings will not tuberculate ... delivers a full flow for the life of the pipe.
4. EXTERNAL LOAD RESISTANCE ...
   6" Class 150 Pipe withstands a crushing load of 17,900 pounds per foot ... nearly 9 tons.
5. CORROSION RESISTANCE ...
   Cast Iron Pipe effectively resists corrosion ... vital factor in its long life and dependability.
6. TIGHT JOINTS ...
   A full range of leak-proof, low cost, easy-to-assemble joints for pipe and fittings are available for all conditions.

You've read and heard thousands of words—all selling pipe.

But make no final choice before you ask this simple question: What pipe offers you not one, not two but *all* the factors that spell long, trouble-free life and dependability.

The answer is ... cast iron pipe. Performance made it ... and performance keeps it ... America's No. 1 Water Carrier.

Its service record *proves* it!

THE MAN WHO CHOOSES CAST IRON PIPE TODAY WON'T PAY FOR IT AGAIN TOMORROW!

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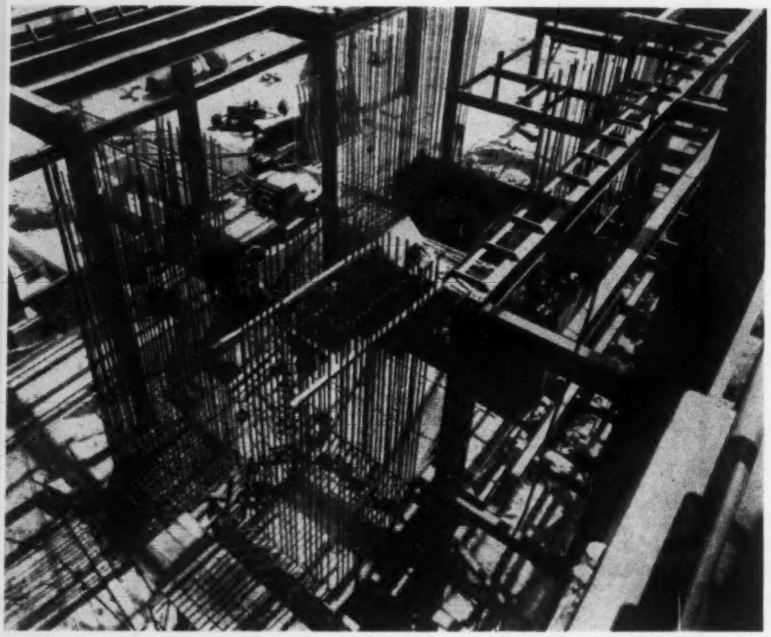
Cast Iron Pipe Research Association
Thos. F. Wolfe, Managing Director
Suite 3440, Prudential Plaza, Chicago 1, Ill.

pipe FOR MODERN WATER WORKS



W. B. Tuttle Plant, Unit #2—100,000 kw power plant for City Public Service Board of San Antonio is one of **H. B. Zachry's** latest projects. It is part of approximately $25,000,000 worth of work completed by Zachry in 1956.

"CONSTRUCTION DAILY HELPS US KEEP 2000 MEN, 1500 PIECES OF EQUIPMENT BUSY YEAR-ROUND",

Says H. B. Zachry Co.

"We complete approximately $100,000 worth of construction each working day," says J. D. Lang, Assistant to the President of H. B. Zachry Co., general contractors of San Antonio, Texas. "To maintain this level of operation, and keep our 1500 pieces of major equipment and 2000 men busy, we have to be continually on the lookout for major new contracts. Construction Daily is our best source of advance information on new work of sizeable proportions."

"The Daily Reports and Newsletter are received by airmail. They are routed first to Mr. H. S. Kerr, Vice President. He Studies them and notes any jobs that we may be interested in bidding. He then may discuss these with our president. They also discuss any significant trends in materials, equipment or labor prices, and any noteworthy changes in business conditions reported in the Newsletter. It is then referred to me for general business background and, in particular, for announcements of any new developments in the planning stage," reports Mr. Lang. "We also use the Daily for economic indicators for future planning purposes. Price report information on significant changes in lumber, cement and reinforcing steel are brought to the attention of our estimators."

The Construction Daily can help you build business, too. Published every working day of the year, it includes two separate publications—the Daily Newsletter and the Construction Reports. The Newsletter is two quick pages of highspot news, newly announced bid dates, proposed new work reports, price information, economic news, reports from Washington and other fast-breaking news that keeps you a step ahead of your industry. The Reports section includes bids asked, low bids, and contract awards on more than $80,000,000 worth of business every day. It is the fastest, most complete system of reports on heavy construction in the country.

Construction Daily can arrive on your desk every morning, delivered air mail west of the Mississippi, giving you a big jump on new business and changes in business conditions that will pay off in new contracts, and time and money saved on current projects. A full year's subscription to this specialized news service costs only $175. Quarterly subscriptions are available for $50 for three months. Write now for complete details.

About H. B. Zachry Co. . . .

Founded in 1925, H. B. Zachry Co. started business as a highway contracting firm exclusively. Gradually they expanded into small commercial and public structures until 1938 when a large natural gasoline plant contract marked its entry into the major industrial field.

The war years were marked with explosive growth, with the firm building airfields, cantonments, and other military facilities in Texas. After the war the company expanded into construction of pipelines, petro-chemical plants, power plants, railroads and dams. Sixteen wholly-owned subsidiaries and affiliated companies have been created in fields ranging from insurance and mortgage companies to contract flight training, aircraft distributorships and aircraft refueling.

In 1940, Mr. Zachry, the founder, served as national president of the Associated General Contractors of America.

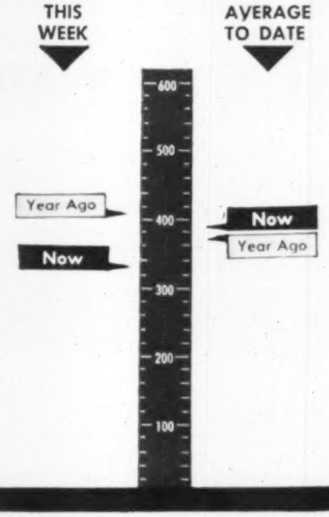
Construction Daily
A McGRAW-HILL PUBLICATION

Dept. EN-R-100. 330 West 42nd St. New York 36, N. Y.

Construction Scoreboard

ACTIVITY THIS WEEK

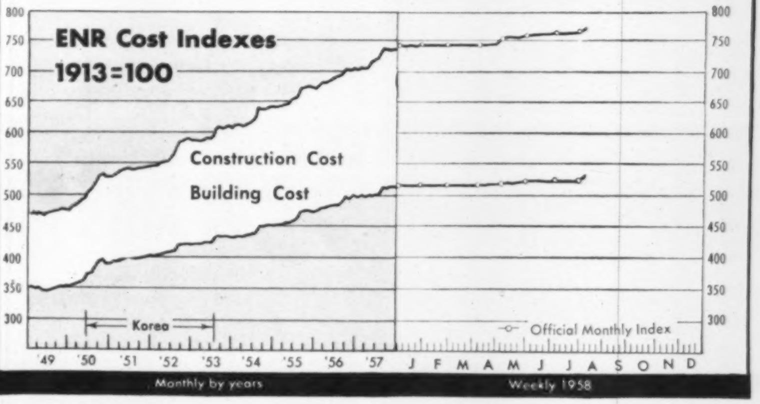
Contract Awards
Millions of Dollars



COST INDEXES AS OF NOW

	Week of Aug. 7 1958	% Change from July 10 1958	% Change from Aug. 8 1957
Construction Cost	770.61	+1.1	+4.4
Building Cost	532.14	+1.5	+3.0

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518



AMOUNT OF CONTRACTS LET

By Ownership	This Week (millions)	Cum. 33 wks 1958 (millions)	Chge '57-'58 %
All Heavy Constr.	$336.9	$12,960.8	+7
Private	152.0	5,358.6	−5
Public	184.9	7,602.2	+17
State & Municipal	148.8	5,420.9	+15
Federal	36.1	2,181.3	+26
By Type of Work			
Public			
Waterworks	3.5	212.8	−9
Sewerage	15.1	385.8	+7
Bridges*	15.9	458.3	−3
Highways	55.4	2,133.6	+4
Earthwork, Waterways	7.2	755.9	+10
Buildings, Excl.			
Housing	64.2	1,753.1	+20
Housing	3.3	886.9	+98
Unclassified	20.8	1,025.0	+28
Private			
Mass Housing	60.9	2,544.7	+30
Commercial	44.2	1,244.2	+8
Industrial	26.2	1,253.0	−43
Unclassified	20.2	307.5	−2

* Includes private bridges.

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

NEW CAPITAL FOR CONSTRUCTION

	Week of Aug. 7 (millions)	Cum. 32 wks 1958 (millions)	Chge '57-'58 %
Corporate Securities	$21.2	$3,486.0	−5
State and Municipal:			
All Except Housing	111.9	4,148.7	+26
Housing	...	33.8	−78
Federal Loans	2.2	121.8	−22
Federal Aid	...	....	−100
Total Nonfederal	$135.3	$7,790.4	−17
Federal Appropriations:			
Projects in U. S.	...	$849.5	+105
Outside U. S.	...	6.3	−72
Total New Capital	$135.3	$8,646.2	−12

CONTRACTS AWARDED

	1958 July (millions)	1958 7-Mos. (millions)	% Change from 1957 July	% Change from 1957 7-Mos.
Total U. S., ENR reported	$2,481.8	$12,109.9	+25	+ 6
Private	821.7	4,994.0	+ 3	− 4
Public	1,660.1	7,115.9	+40	+15
State and Municipal	1,031.5	5,030.0	+22	+12
Federal	628.6	2,085.9	+83	+22
ENR Volume Index, 1913=100	705	566	+20	+ 2

NEW CAPITAL FOR CONSTRUCTION

	1958 July (millions)	1958 7-Mos. (millions)	% Change from 1957 July	% Change from 1957 7-Mos.
Total U. S.	$1,143.1	$8,510.9	−12	−11
State and Municipal Bond Sales	429.7	4,070.7	+35	+24
Corporate Security Sales	647.6	3,464.8	+77	− 2
Federal Loans, Aid (nonfederal work)	27.7	119.6	−88	−95
Federal Appropriations (federal work)	38.1	855.8*	−90	+96

* Includes funds for outside U. S.

MATERIALS SHIPMENTS

	Unit	1958 April (A) May (M) June (J) July (Jy)	Cum. (No. of Mos.)	Percent Change from Year Ago Mo.	Percent Change from Year Ago Cum.
Portland Cement, Bureau Mines	thous bbls	30,262(J)	128,045(6)	+ 2	− 1
Concrete Paving Awards, PCA	thous sq yd	17,842(Jy)	73,059(7)	+101	+19
Fabricated Structural Steel	thous tons	329(J)	1,917(6)	−14	− 8
Bookings, AISC	thous tons	287(J)	1,263(6)	+16	−34
Reinforcing Bars, Net, AISI	thous tons	274(J)	1,007(6)	+18	−25
Lumber, NLMA	mil fbm	2,856(J)	15,761(6)	− 4	− 7
Orders	mil fbm	2,749(J)	15,715(6)	− 6	− 8
Production	mil fbm	2,810(J)	15,443(6)	− 3	− 9
Douglas Fir Plywood, DFPA, 3/8" basis					
Production (average per week)	mil sq ft	........a	.......a	....	....
Orders (average per week)	mil sq ft	........a	.......a	....	....
Clay Products, Bureau of Census					
Brick, Unglazed, Common, Face	mil bri	569.1(A)	1,622.9(4)	+ 9	− 2
Vitrified Clay Sewer Pipe	thous tons	142.5(A)	430.3(4)	+ 2	−13
Structural Tile, Unglazed	thous tons	48.9(A)	158.1(4)	+ 3	−17
Asphalt Products, Bureau of Census					
Asphalt Roofing	thous sales sqs	6,347.0(M)	20,527.0(5)	+60	+ 4
Asphalt Siding	thous sales sqs	91.5(M)	346.2(5)	+43	−15
Aluminum, Wrought, Net, Bur Census					
Sheet and Plate (non-heat treatable)	mil lbs	81.8(M)	367.0(5)	− 9	−10
Wire and Cable	mil lbs	22.6(M)	107.4(5)	− 3	−11
Extruded Shapes (soft alloys)	mil lbs	54.6(M)	244.9(5)	− 8	− 3

a Publication suspended May 1958 by Douglas Fir Plywood Association.

EMPLOYMENT AND FAILURES

	Unit	Month	Cum.	Mo.	Cum.
Contract Const Employment, BLS	thous	2,908(Jy)	2,540(7)**	− 5	− 8
Contractor Failures, Dun & Bradstreet					
Number		161(J)	1,132(6)	− 2	+ 5
Liabilities	thous	$7,390(J)	$58,309(6)	−27	− 2

** Average per month

Business and Finance

Steel Price Hike Strikes Home

ENR cost indexes climb as construction steel items rise $4 to $5.50 a ton; Congress investigates

The long-expected boost in construction steel items brings an immediate result in the ENR Building Cost Index and Construction Cost Index. Even without consideration of recent lifts in lumber prices, the $4 to $5.50 per ton boost shoved the Building Cost Index for August up 1.06% to 531.24, compared to 525.62 earlier this month. The Construction Cost Index edged up 0.74% to 770.06 from 764.44.

The construction materials boost enacted during a series of piecemeal announcements from the nation's steel producers brings new quotes to:

- **Carbon steel standard shapes,** $110, up $4.50.
- **Wide flange** $110, up $5.
- **Bearing piling** $111, up $4.50.
- **Sheet piling** $130, up $5.50.
- **Carbon steel plates** $106, up $4.
- **Reinforcing bars** $108.50, up $5.

The move had been expected since before July when steel workers drew down an increase in wages, so no strong outcries from the construction industry are being heard immediately.

Some construction men report they are protected on contracts they hold, or have stocked materials, with the lift to be felt in current and future bidding. From the fabricator's standpoint, there are indications that the present competitive market will put the brakes on any sharp markups for the time being at least. However, observers believe the rapidly improving picture in construction may bring a change in attitudes.

• Explosive results—Moves by the steel companies were not accepted so quietly in Congress. Even President Eisenhower spoke out on the general upward trend of all prices.

Sen. Estes Kefauver (D.-Tenn.) and his Monopoly and Antitrust Subcommittee opened an investigation. The Justice Department also is investigating to determine if there was any conspiracy involved in the new round of price boosts.

Assistant Attorney General Victor Hansen, head of the Justice Department's Antitrust Division, has many lawyers and economists at work on a steel investigation.

Still under serious consideration by the Justice Department is the possibility of impaneling a grand jury to look into the price boosts. Should evidence of conspiracy be turned up, Mr. Hansen says, "we will prosecute." He told the subcommittee the Justice Department is deeply concerned that certain laws may have been violated when the price hikes were placed in effect.

• Another viewpoint—There are some contradictory viewpoints apparent, however. Chairman John Gwynne of the Federal Trade Commission told the subcommittee that his agency does not think there is enough evidence to warrant its own investigation. Mr. Gwynne said FTC had made several "spot checks" into the steel industry's pricing practices since 1951, but had not turned up any evidence of conspiracy. "While we are disturbed about the situation in this industry," Mr. Gwynne explained, "without evidence of some indication of illegality, we simply do not have the staff to investigate."

President Eisenhower used his press conference to warn business and labor that unless inflation is brought under control, both groups would risk a possible consumer rebellion and a demand for government wage-price controls.

• Fully aroused—The developments in Washington make one thing clear. Government is more concerned about inflation and price increases than it has been in a long time.

The new attitude is that inflation can no longer be passively tolerated; more action is called for. Both Congress and the Administration are seeking new methods and new ideas to check inflation. The issue is one that will gain in strength throughout the coming political campaign and will be an important subject in next year's session.

• No roll-backs—There is nothing the government can do now to bring steel prices back where they were. The FTC and the Justice Department emphasize their function is to enforce laws, not fix prices and wages.

There's no real possibility of government wage-price controls. However, the topic is receiving attention in Congress and has even aroused some interest among conservatives. Much of this is just politics, however.

The government already has gone as far as it can toward curbing steel price rises. That was in 1951, when a consent decree was entered into by the FTC and the steel companies. At that time, steel firms were required to cease and desist from engaging in any conspiracy in establishing prices.

Tax Relief Coming

Senate committee okays bill to aid small business

Some measure of tax relief through faster depreciation write-offs is on the way to businesses both large and small, but small firms will benefit most.

Under pressure, the Senate Finance Committee approved a bill granting a flat 20% write-off in the first year for tax purposes on up to $10,000 in new operating equipment. In case of a joint husband-wife return, the write-off could be $20,000. In addition, regular depreciation charges would apply to the remaining 80% in the first and also later years.

The measure is similar to one passed by the House, but it is slightly more generous in some of its provisions. However, it falls far short of a proposal urged by Sen. John Sparkman (D.-Ala.) (ENR July 31, p. 73). Senator Sparkman says he will go along with the approved bill to assure passage.

The committee did, however, add a proposal long pushed by Senator Sparkman and other members of the Senate Small Business Committee to provide faster depreciation write-offs on used equipment. It would allow up to $50,000 in newly acquired used machinery to be charged off under the rapid depreciation regulations of 1954. These regulations have applied only to new equipment.

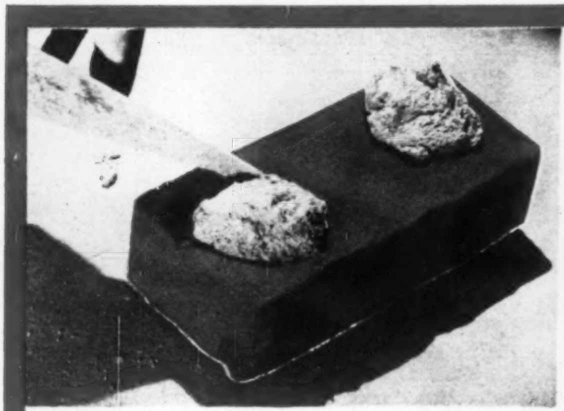
The new write-offs would apply only to operating equipment, not to plant expansion or increased investment in inventories. Senator Sparkman lost in his attempts to secure greater write-offs on these latter two, but will press for passage next year.

Even so, the measure provided by the committee provides more small business benefits than any legislation Congress has approved. Clearance by the conservative Finance Committee at this late date assures that a small business bill will be passed before Congress adjourns.

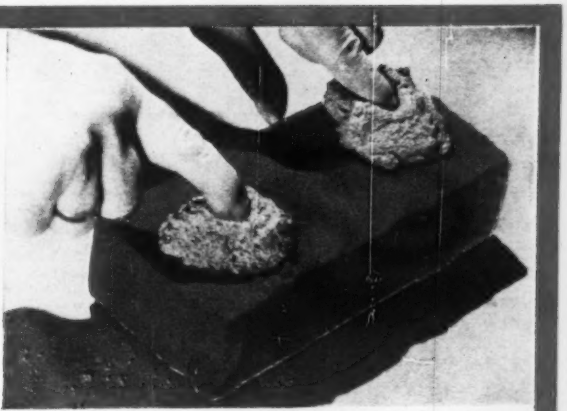
(*B&F continued on page* 102)

BRIXMENT MORTAR

Has Better Water-Retention



Place a dab of Brixment mortar and a dab of ordinary cement-and-lime mortar on a brick. Wait a minute, then feel each mortar.



The one that stays plastic longer will be the one having the highest water-retention. Feel the difference with Brixment mortar!

—AND HIGH WATER-RETENTION IS ESSENTIAL TO WELL-BONDED, WATERTIGHT MASONRY

Water-retaining capacity is the ability of a mortar to retain its moisture, and hence its plasticity, when spread out on porous brick.

High water-retaining capacity is of *great importance* in mortar. If the mortar does not have high water-retaining capacity, it is too quickly sucked dry by the brick: the mortar stiffens too soon, the brick cannot be properly bedded, and a good bond cannot be obtained.

Brixment mortar has high water-retaining capacity. It strongly resists the sucking action of the brick. Brixment mortar therefore requires less tempering, stays smooth and plastic longer when spread out on the wall. *This permits a more thorough bedding of the brick, and a more complete contact between the brick and the mortar.* The result is a better bond, and hence a stronger and more water-tight wall.

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Veto Threatens $265 Million in Building

Largest amount would pay for 46 GSA structures; urban renewal planning and capital grants also hit

Federal construction and related activity of about $265 million is jeopardized by the Presidential veto last week of $6.5 billion independent offices appropriations bill.

Bulk of the $265 million was destined for construction of federal multi-purpose (office and postoffice) buildings. It was the first veto of a money bill in 10 years, the result of President Eisenhower's objection to a proposed $589 million federal payment into the Civil Service pension fund.

Among the major items relating to construction in the vetoed bill were:

- $152.8 million for construction of 46 new multi-purpose buildings. This represents government's big-scale return to direct appropriations for procurement of buildings and abandonment of the lease-purchase program. Biggest of these projects: New Orleans, $19 million; Brooklyn, N. Y., $15 million; Houston, $13.8 million; St. Louis, $11.6 million; Salt Lake City, $9.2 million; Little Rock, $8.5 million; St. Paul, $8 million; Phoenix, $7.8 million; Richmond, $7.7 million; and Oklahoma City, $7.3 million.
- $39.9 million for site acquisition and related expenses in the public buildings program.
- $19.3 million for construction and alteration of veterans hospitals and living facilities. It would bring the unobligated backlog for such purposes to more than $124 million.
- $50 million for capital grants to local communities in slum clearance and urban renewal. The funds would cover the federal government's two-thirds share of losses incurred in land acquisition, clearance and resale for urban redevelopment.
- $3.2 million for matching payments to states, cities or regional agencies in planning urban renewal projects.

• What will happen?—When former President Truman last vetoed an appropriations bill, for the Labor Department in 1948, Congress promptly overrode him. This time, the Democratic Congressional leadership cannot summon the two-thirds vote necessary.

Some influential Democrats, angered at the Presidential rebuke, were talking about the posibility of not reenacting the bill with the offensive $589 million item removed, but rather keeping the involved agencies operating by means of continuing resolution."

This would merely amount to a legislative declaration of intent to provide adequate funds at a later date—sometime next year, in this case. How it might affect the construction items, particularly the public building program operated by General Services Administration, is not clear.

Qualified observers believe Congress will disregard its wounded pride and, in the rush toward adjournment, quietly send President Eisenhower a bill he will accept. If it does not, however, the public building program conceivably could be stymied. The most common form of "continuing resolution" would limit the affected agency to spending no more than was appropriated for it in the preceding fiscal year.

This would mean GSA could spend little more than $2 million on public buildings. This is the amount directly appropriated by Congress for that purpose in fiscal 1958, when the lease-purchase program was still in effect. However, there is another possibility. One Congressional staff source says Congress could enact a variation of the simple continuing resolution, making it obvious to GSA that it was to proceed with the construction program and assume a later appropriation.

Everybody Wins in This Deal

A contractor and a real estate agent are working together to build a brisk business in home conversions in Queens and Nassau counties, New York. The plan is this: An owner of a one-family house hires the contractor to convert it to two-family occupancy. The owner is guaranteed a tenant within 30 days after completion of the job at a monthly rent agreed upon when the conversion contract is signed.

In the process, each of the parties comes out ahead. The property owner obtains income, the broker earns a rental commission, and the contractor makes his normal profit on the job.

• Builds business—The business-building program works because construction of multiple rental dwellings in the two counties has not kept up with demand, says the contractor, Lester Deerdock, of Cross-Island Attic Co., Queens. He adds that demand for rental space has been so strong that his firm has converted more than 800 one-family homes during the last five years—even before the new arrangement.

For the same reason, the agent has no trouble finding tenants for the apartments. John W. Lee, president of Manor Homes, Inc., says he has a waiting list of over 500 couples who want to rent apartments in the area. Therefore, the firm, as part of the agreement with a property-owner, will pay the rent of the converted quarters if a tenant is not found within 30 days. The owner is thus assured of $80 to $95 a month rent for a three-room apartment, $100 to $125 for four rooms.

It costs a minimum of $2,800 to add a three-room apartment, including bathroom and separate entrance, in a one-family house, Mr. Deerdock says. Financing is usually obtained under the home improvement loan program of the Federal Housing Administration. Conversion, including financing, takes about 10 weeks.

Houston Contractor Sues To Recover Tax Payment

Farnsworth and Chambers Co., Inc., Houston contracting firm, is suing the federal government for recovery of $2.7 million paid for alleged tax deficiencies.

The company's lawyers say that perhaps the largest part of the claimed deficiency concerns depreciation of heavy equipment. A legal spokesman says:

"Construction companies customarily depreciate such equipment on a four or five year basis. The Internal Revenue Service is using an eight or nine year rate on the equipment."

The IRS schedule, he says, was used in the 1930s when "contractors were fighting to ward off bankruptcy."

The contractor had to resort to legal action because IRS refuses to review the company's case pending the outcome of a trial stemming from a federal grand jury indictment of five present and former company officials. The indictment alleges the officials attempted to evade corporate taxes from 1951 to 1954.

(*B&F continued on page 104*)

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5. "Squawk" Sheet—used by equipment operator to point out trouble spots that need attention.

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U of Illinois Unveils $198 Million Plan

But on the primary and secondary school levels, school funds for growing needs are big worries

A $198.5 million building program during the next 10 years is shaping up at the University of Illinois.

First step to finance the expansion will be taken next year when university trustees ask the state legislature for $55 million to be spent in 1959-61. Right now, Real Estate Research Corporation of Chicago is making a $75,000 survey to determine possible sites for a new Chicago campus for the university. Its recommendations will be turned over to officials this fall.

The downtown unit will cost an estimated $50 million. It will replace the existing Chicago undergraduate division at Navy Pier. The largest single expenditure—$116 million—will go to the main campus in Champaign and Urbana. Another $32 million will be used for the construction of the university's Chicago professional colleges in the West Side Medical Center.

University trustees also plan to ask for $68 million in the 1961-63 biennium. The remaining funds will be asked in each of the two-year periods after 1963 through 1969.

• **Initial program**—Buildings that will be constructed in downtown Chicago in the first two years of the program with some of the initial $55 million will include: an education building, $3.3 million; commerce building, $2.8 million; physics building, $3.1 million; library addition, $1.4 million; biology building, $2.5 million; electrical engineering addition, $2.5 million; plant science building, $4.9 million; music hall addition, $1.4 million; and physical plant services building, $2 million.

President David D. Henry of the university says two-thirds of the building program, which includes some remodeling, is a backlog of needs and would be necessary "even if enrollment didn't increase at all."

• **Expansion needed elsewhere**—And just as universities are having difficulty in keeping up with increased enrollments, elementary and secondary schools are also running out of space.

• **Nationwide shortage**—It will take 14 years to end the school classroom shortage in the nation at the present rate of construction, according to Ray L. Hamon, chief of the U. S. Office of Education's School Housing Section. He says that when schools open in September, the nation will be short 132,800 classrooms. The shortage is being reduced by 9,500 rooms a year.

On a state level, a top Michigan official says his state will have to spend $1.5 billion in the next six years for schools. He reports that 10,632 classrooms are needed at once. He proposes that school districts be authorized to issue bonds for as long as 30 years and that a state revolving fund be established to help those districts where "an excessive tax effort is required to meet school needs." In the last seven years, Michigan communities have spent $684 million for new school buildings.

• **New Jersey's plight**—State education officials say there is a growing inadequacy of school facilities in New Jersey. The shortage is expected to increase in the next two years.

The State Department of Education has approved public school construction during the last year estimated at $86.7 million. Much of the work will be under construction during the coming year. But it's not expected to be sufficient to accommodate increased enrollments.

So far only 131 out of 236 New Jersey school districts requiring new facilities in the next two years are known to be planning for them. More than 60% of the $86.7 million in approved projects will be spent by eight metropolitan north Jersey counties.

Financing of school facilities in the state falls almost entirely on the local taxpayer because very little state aid is provided. As in other parts of the country, there is some concern in New Jersey that existing tax burdens may discourage future school bonding proposals placed before voters.

• **No change apparent**—However, no sharp reversal of approval trends is noted so far for public financing of all types. The Investment Bankers Association of America reports that in the first half of this year, voters approved over $1.1 billion in municipal bonds, or 78.7% of the total value of issues submitted to voters.

Total school bond proposals amounted to $773.5 million, of which $556.8 million was approved. That's a 77% approval rate.

New York State, however, reports a survey by its Education Department indicates it's becoming more difficult to pass school bond issues. The survey shows that although a majority of the school bond proposals submitted to voters were approved, rejections reached a high of 41% during the final six months of last year. However, the survey failed to detect a positive trend.

Town's Attempt to Save Industry Balked by Court

A Kentucky Court of Appeals has ruled that towns cannot sell revenue bonds to finance industrial projects.

The ruling knocked down plans of two towns—Henderson and Corbin—to prevent increased unemployment. In Henderson, the town wanted to acquire a factory due for partial or complete shutdown, because the company lacked adequate working capital. The purchase was to be financed by municipal bonds. City officials also said they had been told other companies would locate in the town if buildings were provided.

Corbin planned to establish Industrial Building Corp., which would sell $75,000 in bonds to finance acquisition and improvement of industrial property. The corporation would lease the property to the town, at rentals sufficient to retire the debt.

The court decision underlined one pitfall of such industrial financing schemes—their dependence on eventual interpretation of state law. The court agreed that acquiring industrial property for the relief of unemployment is a public project "in a broad sense." But it ruled that such action is not a public project "when it comes to financing the same by the issuance of revenue bonds."

However, a Tennessee court held just the opposite in approving a law authorizing the sale of bonds by Lebanon, Tenn., for construction of manufacturing plants (ENR March 13, p. 117). It ruled the act had a public purpose because it was for community benefit.

Contractor Gets Second Urban Renewal Contract

F. H. McGraw & Co. has been awarded a contract to redevelop 57 acres in downtown New Britain, Conn. The project is expected to cost $20 million. Completion will take about four years.

The McGraw firm was selected in July to redevelop a 15-acre site in Hartford (ENR July 24, p. 81).

(B and F continued on page 107)

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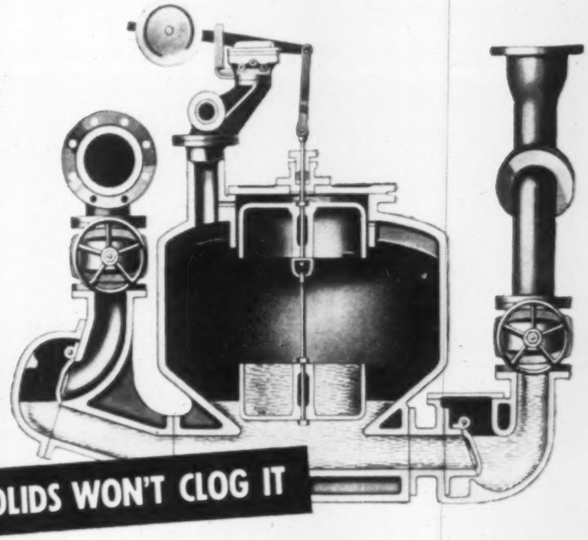

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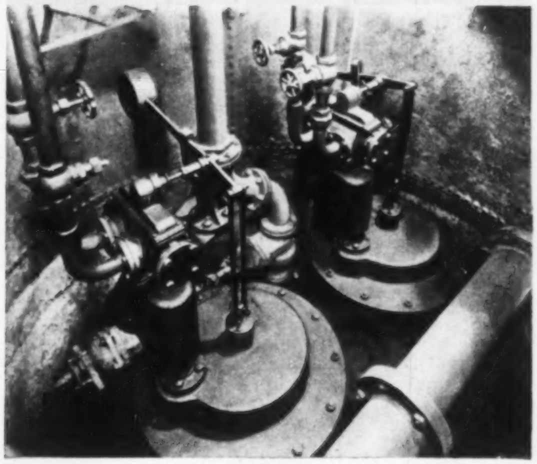

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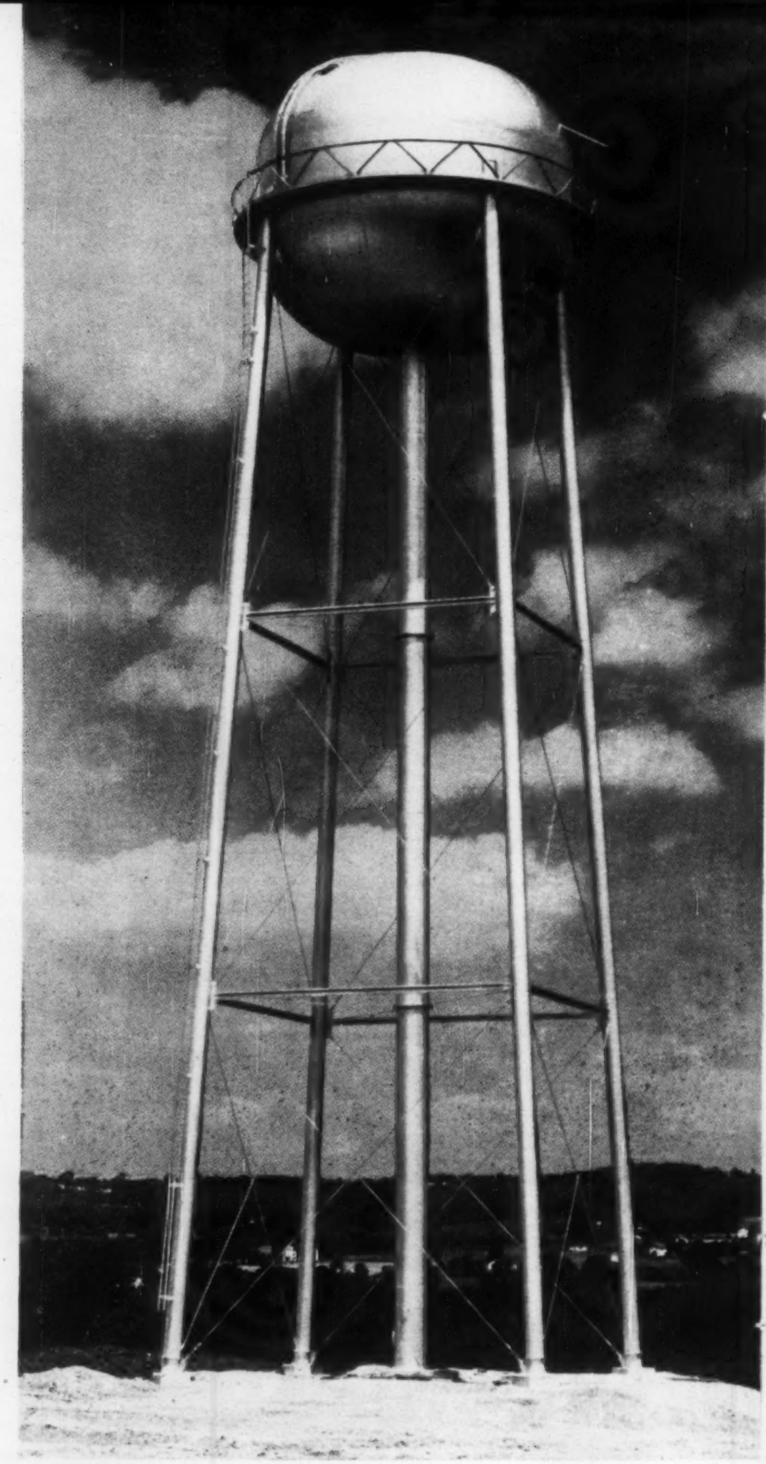

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Goods Will Replace Money

Novel "financing" will distinguish a $1 million commercial and residential development planned in Cleveland. One-quarter of the investment will be in the form of material and labor supplied by six firms and two individuals. In return, the financiers will receive stock in Brookpark-Hauserman Development Co., the developer.

The materials and labor invested will be valued at cost plus 5%, says Adelbert Kleine, Cleveland architect who heads Brookpark-Hauserman. Each of the investors will decide how much to contribute. The arrangement is designed to "create investment opportunities for several persons rather than just a couple," Mr. Kleine explains. Moreover, "each will have a personal interest in the job by contributing good materials and work." The remaining cost of the structure will be financed through conventional means.

The project consists of four, two-story brick apartment houses and a two-story office and commercial building on adjoining property. The apartment buildings will contain 68 units renting from $105 to $120 per month. The residential buildings have priority and are scheduled for completion by December 1.

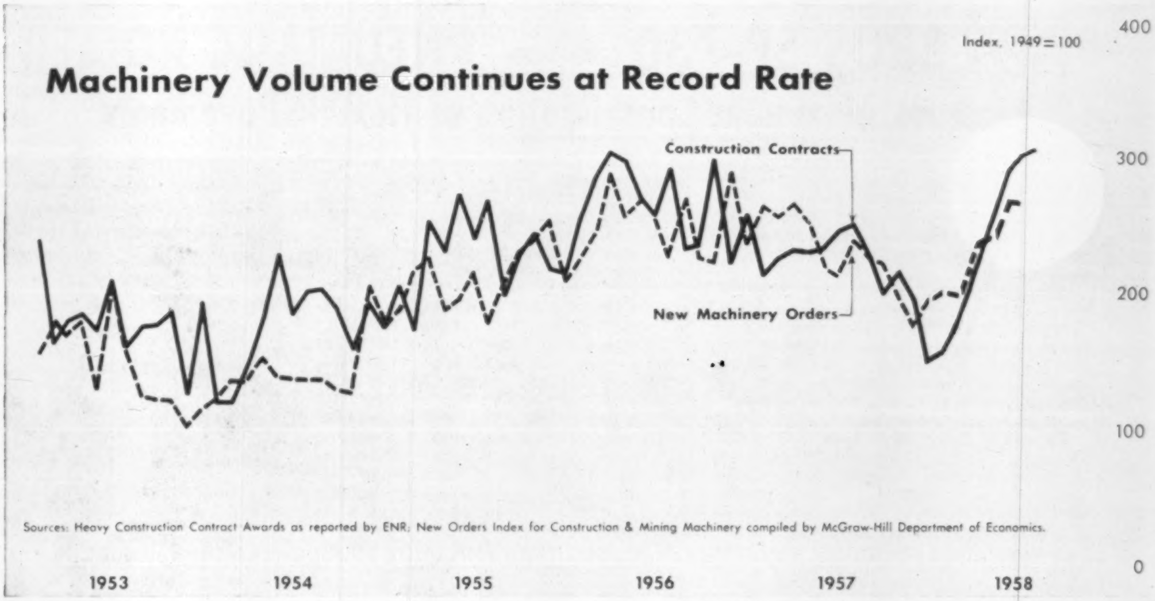
Here are the investors and their contributions: Carl F. Ullrich, mason contractor; E&M Steel & Construction Co., structural steel; Ohio Builders Specialty Co., aluminum sash and glass; Parkill Lumber Co., lumber; Fairview Furnace & Steel Metal Co., roofing, sheet metal, heating and air conditioning; Industrial Electric Wiring Co., electric wiring; Duisik Plumbing & Heating Co., plumbing, and Mr. Kleine, who will contribute the architectural design and general supervision of construction.

Local Firms Get 92% Of Ohio's Road Work

The Ohio Department of Highways reports that over 92% of the successful highway construction bidders in 1957 were native Ohio firms. More than 190 highway contractors obtained work under the state's $290.5 million highway program that year. All but one had done prior work in the state.

The department's report also reveals that half the road contracts let were under $50,000. Nationally, about one-third of all road contracts are less than $50,000. About 80% of the contracts were under $250,000, compared to 75% nationally. Both in the state and nationally, 93% were below $1 million.

Highway Director Charles M. Noble says small contracts "provide for healthier, competitive bids by allowing more small contractors to bid for the work. It also complies with the intent of Congress . . . maximum participation by small business should be encouraged."



Machinery Volume Continues at Record Rate

Sources: Heavy Construction Contract Awards as reported by ENR; New Orders Index for Construction & Mining Machinery compiled by McGraw-Hill Department of Economics.

'58 Machinery Sales Will Shade '57

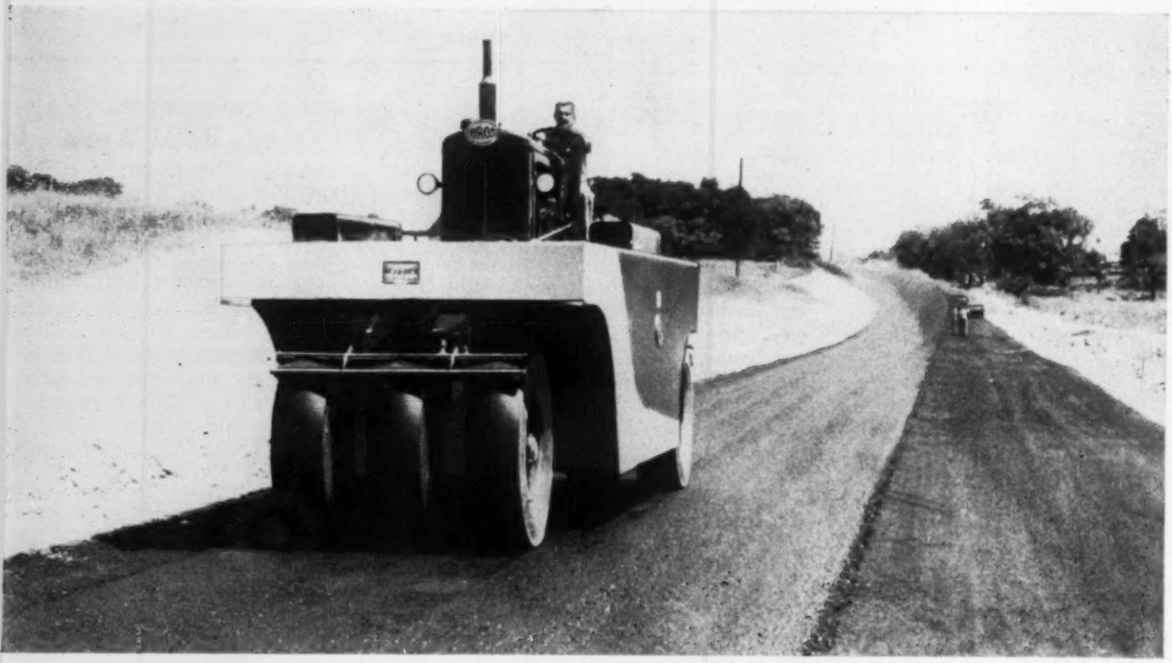
The regular quarterly survey of construction and mining machinery manufacturers by McGraw-Hill Department of Economics shows the industry expects a 2% improvement over last year's volume. Moreover, manufacturers anticipate that the increase this year will carry strongly through the second quarter of next year.

During the current third quarter, the average volume of new orders is forecast at 230 on the McGraw-Hill Machinery Orders Index based on 1949 = 100. For the fourth quarter, the predicted value is 229. That's a downward revision from the 238 forecast at the close of the first quarter of this year (ENR May 15, p. 176).

However, manufacturers were overly cautious when they predicted an average second quarter of 233, for actual volume was at 264 on the index.

In the first quarter of next year, the predicted index value is 242, the second quarter, 283. The latter would represent a 7.5% gain over this year's second quarter.

For the month of June, the New Orders Index was at a record for the month. It was the second consecutive monthly record. In May the value was at 274; in June it was 273, a slight dip from the previous month.



Front wheels of BROS SP-730 roller oscillate as a unit, rear wheels oscillate in pairs to accomplish *uniform consolidation by kneading.* Far greater compactive forces are exerted than would be expected under normal traffic. Finished mat has enough *immediate* stability to withstand effects of modern traffic and yet has maintained enough voids to provide flexibility.

New BROS SP-730 (30-TON) PNEUMATIC ROLLER–

Achieves Maximum Consolidation of Flexible Pavements

● In a search for better compaction of asphaltic mats, the State of Ohio adopted specifications in 1956 for a *self-propelled rubber-tired roller* capable of wheel loads and contact pressures above the maximum produced by legally loaded trucks.

One such roller which met the new specifications was tested in 1957 to determine if it would consolidate a newly laid asphaltic concrete mat to the extent that the finished pavement would be stable under modern heavy traffic and still have enough flexibility to respond to any subsequent subpavement movement.

It was a Bros Model SP-730 (Self-Propelled, 7 Rubber-Tired Wheels, 30 Tons Maximum Weight) with three wheels forward and four wheels in the rear. Construction of the mat in no way varied from standard methods except that the Bros rubber-tired roller was used in place of the steel tandem roller usually operated behind the initial roller.

The Bros roller was used on a project in Licking County to construct a three inch asphaltic concrete binder course over a base of five inches of waterbound macadam on an eight inch granular subbase.

IN-PLACE DENSITY TESTS ON THE COMPLETED MAT, CONDUCTED BY THE OHIO STATE HIGHWAY DEPARTMENT, SHOWED AN AVERAGE VOID CONTENT OF 4.01% AND AN AVERAGE DENSITY OF 100.99%! VARIATIONS IN DENSITY AND IN VOID WERE, FOR ALL PRACTICAL PURPOSES, ELIMINATED. (SEE TABLE.) AND, WHAT'S MORE, DESIGN DENSITY WAS ACCOMPLISHED BY ONLY ONE PASS OF THE ROLLER!

Results of this test *and* of a second test on a similar project in Clermont County (which showed an average void content of 3.71% and an average density of 101.28%) are now available on request.

Can your state afford *not* to get asphalt mat compaction results similar to those described? Send for the complete report today. You'll be on your way with *initial* compaction that's final . . . to greater, longer-lasting pavement stability *than has ever before been possible!*

SP-730 RESULTS ON THE COMPACTION OF ASPHALTIC CONCRETE LICKING COUNTY, OHIO

Percent Voids	Percent of Design Density	Position in Cross Section (From C)
4.40	100.60	10 ft. lt.
4.90	100.10	4 ft. lt.
5.08	99.92	on c
2.73	102.27	4 ft. rt.
2.34	102.66	10 ft. rt.
4.69	100.31	10 ft. lt.
3.02	101.98	4 ft. lt.
3.93	101.07	on c
4.40	100.60	4 ft. rt.
4.11	100.89	10 ft. rt.
2.13	102.87	10 ft. lt.
4.58	100.42	4 ft. lt.
6.18	98.82	on c
4.14	100.86	4 ft. rt.
3.54	101.46	10 ft. rt.
4.01	100.99	AVERAGE

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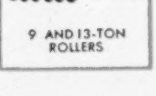


9 AND 13-TON ROLLERS

Senate Probe Forcing AFL-CIO Action

With his biggest troubles still to come, James Riddle Hoffa is already feeling the pressures that could topple him from the top office in the International Brotherhood of Teamsters.

The McClellan Anti-Racketeering Committee has several weeks of hearings still to come, and already its revelations about the teamster stewardship of the Detroit labor leader are hitting their mark. Also immediately ahead is some new crackdown action by the AFL-CIO against the giant trucking union it expelled last December.

This latest attack on the 46-year-old Hoffa is strengthening the hand of federation President George Meany in two respects:

- It's giving him new ammunition to use in his fight to free the AFL-CIO from the stigma of corruption.
- It is promoting his chances of getting the giant teamsters union back into the federation fold minus the leadership of Mr. Hoffa.

Whatever the result, it could mean some changes in the construction union picture—namely the day-to-day working relationship between the teamsters and the rest of the building trades.

The resilient teamster chief has already successfully survived three court cases and the public condemnation of the AFL-CIO. But this time, the outcome could be different.

The Senate Select Committee investigating labor and management charges Mr. Hoffa with refusal to clean up the teamsters, and accuses him of using racketeers, hoodlums and union funds for his own ends. Ahead are several weeks more of public hearings on a year's investigation of Hoffa's affairs by committee investigators.

Moreover, the AFL-CIO Executive Council meets next week to act on President George Meany's proposal to break off any federation alliances with the top command of the teamster union.

The court-appointed board of monitors for the teamster union has also said Mr. Hoffa still has a lot of unfinished house cleaning to do before he can get his union out from under the present supervision imposed by the court.

These events are certain to mean changes in the teamster position with the AFL-CIO, and its affiliated unions. The unwritten peace pact between the Hoffa-led teamsters and the Meany-run AFL-CIO—which permitted advance of the mutual aid agreements between the two groups—is about over.

SPOTLIGHT on James Hoffa in McClellan committee hearings plays into the hands of George Meany, who wants to cut all AFL-CIO ties with the teamsters.

The outcome will fall into one of these two areas: Mr. Hoffa will be forced out of his presidency by mounting evidence of the McClellan committee and pressure by the AFL-CIO, or the teamsters will be isolated from most of the unions it has been dealing with on the international level.

• **The McClellan hearings**—So far, the evidence supplied by the third round of hearings into Mr. Hoffa's teamster leadership concerns extortion of employers in the Detroit area, use of teamster funds for private profit, keeping convicted racketeers and admitted thiefs in high teamster office. Committee member Sen. John F. Kennedy says Mr. Hoffa alone gives the "greatest stimulus" for legislative curbs on labor.

Specifically, in the Detroit area, which Mr. Hoffa runs as head of teamster Joint Council 23, the teamsters are accused of extorting money from employers to ease union pressure.

Testimony never directly pointed at Mr. Hoffa as recipient, and he denied he got the money.

He also was questioned about cleanup pledges he made at committee hearings a year ago. Even in cases of teamster officers who were either admitted or convicted crooks, Mr. Hoffa conceded he had taken no action against them. At one point, he claimed he hadn't had time in his six months in office. He also said the officials told him they hadn't done anything wrong and that was sufficient.

• **AFL-CIO action**—At next week's AFL-CIO Executive Council meeting, Mr. Meany is expected to insist on the break-up of union pacts that help strengthen the teamsters.

Mr. Meany says: "Most certainly the labor movement is not being protected from corrupt influences when an AFL-CIO affiliate maintains ties with a corruptly dominated labor organization that are of such a nature as to assist the corrupt leadership to retain control or lessen the desire of union members to overthrow such corrupt leadership." He feels these ties violate the federation's constitution.

Although the gravest target seems to be the possible alliance of transport unions, the big concern of the construction industry is the fate of the Four-Way Pact—an alliance for organizational purposes between the carpenters, laborers, operating engineers and teamsters.

If the pact is killed, it could split at least part of the building trades away from the federation. There is considerable speculation that the Executive Council will try to avoid this by stepping around the pact—either because it was set up before the federation was formed or because its operation is essentially local in nature.

However, it's a good bet that several of the dozen pacts now in existence will be banned—but at least two of them will be kept in force, even under the penalty of ouster. Those are the teamster-butcher organizing pact and the newly signed transport agreement, with Joseph Curran's National Maritime Union as a partner.

The validity of each of the pacts

turns on the language of the AFL-CIO constitution, which covers the problem only in general terms. If the federation attempts to come up with an edict that bans some alliances and exempts others, it will call for some clever footwork from the best of its lawyers.

Whatever the outcome may be, the issue has now been forced. And the new Hoffa phase of the Senate investigation is putting the pressure on the AFL-CIO to clarify its thinking and to end its temporizing with the teamsters.

Contracts Extended

Equipment manufacturers and UAW still far apart on new wage settlements

A strike against equipment manufacturers has been staved off, at least temporarily, by an extension of labor contracts with the United Auto Workers Union.

UAW is now negotiating with Caterpillar Tractor Co., International Harvester Co., Deere & Co. and Allis-Chalmers Manufacturing Co.

Although contract negotiations have been deadlocked for some time, there seems to be little likelihood of an immediate strike. A spokesman for Inland Steel Co., for example, reports that the company's biggest customers among construction equipment manufacturers have hiked steel buying sharply during recent weeks. For the most part, he says, they are still buying well after a long period of reducing inventories, indicating little fear of a strike.

The UAW contract extensions with Caterpillar, Harvester and Deere are considered "rather unusual." But the general situation for UAW is itself unusual. Ordinarily the settlement pace is set by contracts in the auto industry, but no progress has yet been made at those bargaining tables. Also the pressure in the equipment industry is not so great because the union's average hourly wage is about 20 cents more than in the auto industry.

The union demands are substantially the same as those now before the auto manufacturers. Emphasis is on profit sharing, broader supplementary unemployment benefits, liberalized pensions (including relief to inflation-pinched retired workers), a new approach to productivity increases and more job security.

Each of the contract extensions has a cancellation clause—on five days' notice for Caterpillar and Harvester and 10 days' for Deere. (The existing contract with Allis-Chalmers does not expire until August 15.

Workers Get Income Tax Break

Construction workers have been officially assured that travel and room and board expenses while temporarily working on projects away from home can be deducted in their federal income tax reports.

The assurance came last month from Russell C. Harrington, Commissioner of the Internal Revenue Service. It is the result of two-and-a-half years of union effort to obtain a uniform and favorable ruling on the allowance of such deductions.

Mr. Harrington has instructed all of his regional commissioners and district directors to adhere to the same rules in handling these deductions. Those rules appeared first in a May 1956 letter from Mr. Harrington to former Congressman Robert Mollohan, then chairman of the House subcommittee on legal monetary affairs.

To qualify for the deduction under these rules, a worker must meet a number of tests. He must be working at his usual trade away from home and must have taken the work for business reasons, such as a shortage of work where he lives. He must not be an itinerant worker and the work away from home must be temporary. If he qualifies, he can deduct transportation expenses to and from the job and the cost of meals and lodgings at the temporary location.

The rules merely represent a change in the administration of the law—not a change in the law itself.

Biggest hitch for most workers is whether the work away from home is temporary. If it goes on for an indefinite period, it's not temporary (a fact the law requires) and the expenses may be disallowed. On this point Mr. Harrington presents two guides:

- The deduction ordinarily will not be questioned if the actual period away from home is less than one year, as long as the worker had not intended to be away from home for an indefinite period.
- Employment of an anticipated or actual duration of more than a year at a particular location tends to indicate indefinite employment and such cases will be carefully scrutinized.

Union efforts to obtain a uniform ruling have been spearheaded in and out of Congress by building trades' President Richard J. Gray and plumbers' President Peter T. Schoemann. They contended that building tradesmen who leave their communities to work temporarily elsewhere—which is the way most of the big atomic projects have been built—are clearly entitled to the deduction because they are "away from home in the pursuit of a trade or business." And they have accused the Internal Revenue Service of handling these claims on a hit-or-miss basis in the field. (Until now, the Mollohan letter has not been circulated as a standard or official guide.)

The right of construction workers to deduct such expenses is now before the U.S. Supreme Court in what is known as the Peurifoy case. Mr. Gray has served notice that an effort will be made to get the law amended if the court disallows the deductions. In the meantime, however, construction workers have been given the green light to claim the deductions.

Work Assignment Disputes Cause Delay on Two Jobs

Union quarrels over installation of some aluminum window framing and of a precast concrete-slab roof recently caused two jurisdictional work stoppages in the construction industry.

The first occurred on a $2½ million off-street parking project in Cincinnati. Both the glaziers and the iron workers claimed the right to install 30 ft of metal stripping and four uprights for window installations.

The second erupted on a new waterworks plant in Ashland, Ky. The bricklayers and the roofers claimed the right to lay a precast concrete-slab roof.

Work on both projects was delayed by the disputes. But in each case settlements were reached by international officers of the competing unions.

Court OK's Picketing of Contractor Violating Law

A contractor who is violating a state law cannot prevent union picketing in protest against the violation.

That was the ruling of a Mississippi court recently in denying an injunction requested by C&B Construction Co. of Memphis, Tenn. The picketing was conducted by a local of the electrical workers union in Corinth, Miss., where C&B is doing construction work on the Wurlitzer Co. piano plant.

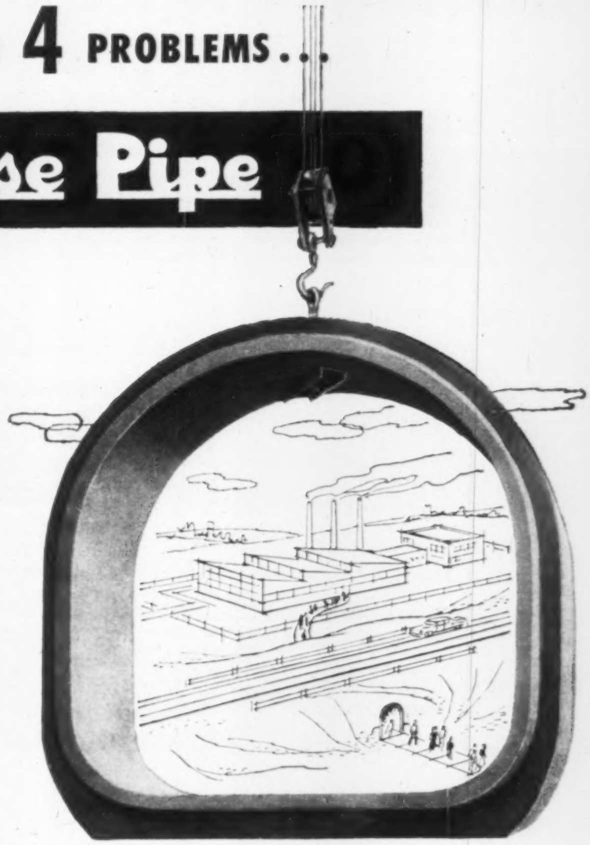
Chancellor William Inzer found the construction company and its electrical subcontractor were hiring out-of-state workers in violation of a state law requiring the use of local labor on public contracts.

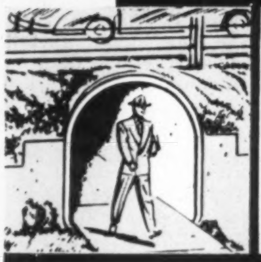
The construction work is being done under a state law to balance agriculture with industry.

(Labor continued on page 112)

QUICK, LOW-COST ANSWER TO 4 PROBLEMS...

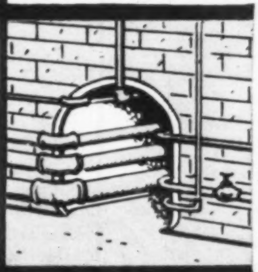
Flat-Base Pipe





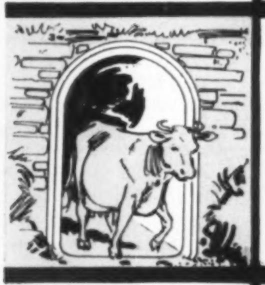
PEDESTRIAN UNDERPASS

The practical way to safeguard the lives of adults and children. Especially valuable near schools and playgrounds. Also helps to maintain an even flow of street-level traffic.



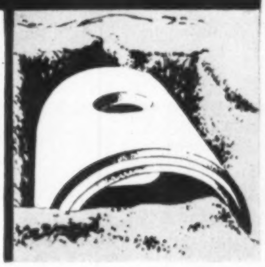
UTILITY GALLERY

Carries steam pipes, gas mains, electrical cables and telephone lines with ample room for workmen to make repairs. Flat-Base Pipe is also used for culverts and cattle passes.



CATTLE PASS

Eliminate the hazards of road level crossings to lives and livestock with Flat-Base underpasses. Reinforced concrete Flat-Base Pipe can be jacked under railroads and highways without disturbing traffic.



UTILITY MANHOLE

Manholes for utility companies have often been built with Flat-Base Pipe in less than four hours. This eliminates needless traffic delay and reduces labor costs to a minimum.

Save as much as 30% in the construction of pedestrian underpasses, culverts, utility galleries and manholes—with pre-cast Flat-Base Pipe. You can place and cover from 52 to 100 feet of Flat-Base Pipe in a single day. No forms to construct . . . no steel reinforcing to position . . . no concrete pouring. Can be jacked through old construction or laid in new fills. Joints are tongue and grooved and can be made watertight with rubber gaskets. Available now, in a wide variety of standard sizes.

Our technical staff will be pleased to assist you with your pipe problems

Write for free, illustrated folder on money-saving Flat-Base Pipe.

A M

AMERICAN-MARIETTA COMPANY

CONCRETE PRODUCTS DIVISION

GENERAL OFFICES:
AMERICAN-MARIETTA BUILDING
101 EAST ONTARIO STREET, CHICAGO 11, ILLINOIS, PHONE: WHITEHALL 4-5600

Switch Builders?

Unions and businessmen say Corps' Barkley Dam should be built by TVA

AFL-CIO labor unions, businessmen and private citizens in Kentucky have tried without success to get construction of the $170 million Barkley Dam transferred from the U. S. Corps of Engineers to the Tennessee Valley Authority.

Members of Kentucky's Congressional delegation told union officials it would require an act of Congress to effect the transfer. And that is "out of the question" at the present time, says Forrest R. Bugher, vice president of the Kentucky Federation of Labor.

The proposal originated last April. At that time, western Kentucky unions had become increasingly unhappy over the handling of construction work on the cofferdam and locks by Wasson Co. of Boonville, Ind. The AFL-CIO unions said that Wasson, which has a labor contract with the United Construction Workers, was hiring men from Indiana, Illinois and Missouri, rather than local men. Mr. Bugher says many local men are still unemployed and the local economy would be given a shot in the arm if they could work on the big federal project.

The Congressional comments on the transfer proposal came in reply to petitions from western Kentucky bearing more than 2,000 signatures. The petitions were endorsed by the Paducah Building and Construction Trades Council and sent to Sen. John Sherman Cooper (R.-Ky.), who passed them on to the government agencies concerned.

"There's no doubt in anyone's mind that if the TVA had the job of building the dam and resettling the people of Kuttawa and Eddyville that the job would be done more efficiently," said Mr. Bugher, who's also district representative of the operating engineers in Paducah.

The cofferdam work is nearly completed and the unions hope the next contract let will result in work for people in the area.

A picket line has been in effect at the site since last summer to protest the use of UCW workers and the hiring of out-of-state men.

Politics and Economics Spur Local Labor Unity

Taking a leaf out of the book of organized business, labor unions in Toledo, Ohio, have formed an alliance to promote their mutual interests on a broad front. The reason: Labor feels it can no longer afford the "luxury of divided ranks" on important issues.

The new group, organized last month, will concentrate on civic, economic and political action. It embraces not only the AFL-CIO unions but also the teamsters and the United Mine Workers.

Among its goals are these: defeat of efforts to enact a right-to-work law, higher unemployment compensation benefits (75% of take home pay), legislative approval of private supplemental unemployment benefit plans, improved state-aid to the aged, local public works projects for the unemployed, a campaign to urge employers not to pay overtime when layoffs exist and not to hire workers with other jobs, a drive for complete voter registration.

A 14-man steering committee will be named by Chairman Richard T. Gosser, an international vice president of the United Auto Workers.

The group represents 125 local unions covering 75,000 workers.

Presidential Warning: Look Out for Inflation

Fast on the heels of a general increase in the price of steel, President Eisenhower last week issued another warning to business and labor on the dangers of inflation.

If we are to avoid a federally controlled economy, he said, we must be "very, very careful" about annual wage increases that outstrip productivity gains and about price increases that rob the public. The warning came in response to a question at his news conference.

Labor has the biggest stake, President Eisenhower said, because inflation erodes so much of what it has gained. He referred to purchasing power losses of pensions, social security and savings. (This is a dominant theme of the United Auto Workers union in its current bargaining with the auto industry.)

The President predicted that unless business and labor exercise some self-restraint, the American consumer is "going to rebel in a big way and there will be real trouble, and we will get something we don't want."

Safety Code Suggested For Workers in Indiana

Gov. Harold W. Handley has asked State Labor Commissioner L. Derrell Weaver to consider calling a meeting of representatives of contractor associations and building trades unions to help draw up a safety code for building trades workers in Indiana.

Wages Keep Up Pace

Quarterly gains near high point set in '57

Union construction workers pushed their hourly wage scales up an average of 9.1 cents an hour during the second quarter of this year. This is the largest gain scored in any similar period in the last 10 years, except for 1957.

The figures are based on a quarterly survey of union scales by the U. S. Labor Department's Bureau of Labor Statistics. The survey covered seven major building trades in 100 cities.

The estimated average rate for all union building trades workers was $3.34, as of July 1.

Increases of 20 cents an hour were granted in an eighth of the wage adjustments. Raises of 15 cents were provided in 20% of the cases, 10 cents in 25%. Smaller increases—7½ cents or less—went to 12% of the workers.

Average hourly wage gains by trades varied from 10.7 cents for plumbers to 5.3 cents for painters.

How well have the unions fared? The bureau says the rate level on July 1 was about 62% above the average for the 1947-49 period and 4.4% higher than in July of last year. This year's second quarter increase, however, was only 2.8%, compared to 3.4% for the same period last year.

The increase in average hourly scales of union building trades in the last 12 months has amounted to 14 cents for all trades combined. It has varied from 10½ to 17½ cents, among the individual trades surveyed—bricklayers, carpenters, electrical workers, painters, plasterers, plumbers, laborers.

Jobless Pay Is Forfeited By Honoring Picket Line

A decision that prevents use of unemployment compensation as a device for aiding and abetting strikes has been issued by the Alabama Supreme Court.

The court ruled that a nonunion employee who refuses, during a union strike, to cross a peaceful picket line to work on a job that's open to him is disqualified from receiving state jobless benefits.

The fact that refusal to cross the picket line may have stemmed from apprehension of physical violence is not determinative, the court said, because it would not be legal evidence.

At the same time, the court held that a non-striking employee who refuses to cross a picket line because of adherence to trade union principles is also disqualified.

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $2.40 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division,
Engineering News-Record
Class. Adv. Div.,
P. O. Box 12, N. Y. 36, N. Y.

Bids: August 28, 1958.

Contract B. P. 58-66
Town of Riverhead, New York

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Public Building Law and Highway Law, sealed proposals will be received, until 10:30 A.M., D.S.T., August 28, 1958, by Henry A. Cohen, Director, Bureau of Contracts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y.

Contract B. P. 58-66 for
Beach Protection (Two Stone Groins)
at Wading River Beach, Town of
Riverhead, Suffolk County, New York

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts, 14th Floor, The Gov. Alfred E. Smith State Office Bldg., Albany, New York.
(b) Department of Public Works, 270 Broadway, New York City, New York.
(c) In addition to the above mentioned offices, plans, maps and specifications for Contract B.P. 58-66 may be examined and obtained at the office of Mr. Milton E. Goul, 325 West Main Street, Babylon, L. I., New York.

The deposit for Plans and Proposal Forms for Contract B.P. 58-66 is $10.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's Estimate of Cost for Contract B.P. 58-66 is $65,000.00.

Proposals for Contract B.P. 58-66 must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check, payable to the order of the State of New York, Commissioner of Taxation and Finance for the sum of $3,500.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Public Building Law and to the Highway Law as set forth in "Instructions to Bidders" in the contract specifications.

The right is reserved to reject any or all bids.

JOHN W. JOHNSON
SUPT. OF PUBLIC WORKS

Bids: September 9, 1958.

Contract NYA-651.063

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
CENTRAL TERMINAL AREA
EXPANSION OF PARKING LOT NO. 3

Sealed proposals for the construction of paving and utilities for the expansion of Parking Lot No. 3 at New York International Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, September 9, 1958, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, August 14, 1958

READ THE OFFICIAL
PROPOSAL COLUMN OF
ENGINEERING NEWS-RECORD
THIS WEEK AND EVERY WEEK

Bids: August 26, 1958.

Power Authority of the State of New York

ADVERTISEMENT FOR PROPOSALS
FOR
CONSTRUCTION OF
WADDINGTON PARK AND
COLES CREEK MARINA
IN
ST. LAWRENCE COUNTY, NEW YORK
SPECIFICATIONS NO. PA-5-11044
ST. LAWRENCE CONTRACT NO. 50

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for Construction of Waddington Park and Coles Creek Marina, St. Lawrence County, New York, until 10:30 A.M. Eastern Daylight Saving Time on the 26th day of August, 1958, at the Authority's office, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place the proposals will be publicly opened and read aloud.

The estimated quantities of the principal items of work are as follows:

Excavation, unclassified..	7,700 cu. yds.
Compacted embankment..	7,200 cu. yds.
Foundation course gravel.	4,500 cu. yds.
Asphaltic concrete pavement	960 cu. yds.
Reinforced concrete	50 cu. yds.
Chain link fencing........	680 lin. ft.
Seeding	16 acres
Miscellaneous park equipment	30 items

All work shall be completed on or before July 1, 1959.

Plans, Specifications and Proposal Forms for the work may be obtained from the Power Authority of the State of New York, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, upon application and prepayment of a fee of Ten Dollars ($10.00) per initial set of contract documents, and Five Dollars ($5.00) per set for additional sets, no part of which will be refunded. Plans, Specifications and Proposal Forms for the work will be on file in the Authority's office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and The Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, and may be inspected by prospective bidders during office hours.

Bids must be made in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than 20 percent of gross sum bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

Bids: October 2, 1958.

Construction of Highways Projects

The Hawaii Territorial Highway Department at Honolulu anticipates calling for sealed tenders for construction, under one contract, of a Portion of LIKELIKE HIGHWAY, Federal Aid Project No. S-0630(3) and LUNALILO FREEWAY, Federal Aid Project No. U-072-1(7) Unit 3 and KALIHI STREET, Federal Aid Project No. US-0630(2), District of Honolulu, Island of Oahu, Job Nos. 5914, 5983 and 5984, during August 1958 with bids to be opened approximately October 2, 1958.

Interested contractors may secure plans and specifications upon application for same accompanied by cashier's check, certified check or money order, made payable to Territorial Highway Engineer in the amount of $100.00 including postage. Of this amount $75.00 will be refunded upon return of plans and specifications postpaid. Plans and specifications will be mailed when job is officially advertised.

Approximate major quantities are:

Quantity	Unit	Item
524,000	c.y.	Roadway Excavation
40,220	c.y.	Structure Excavation
115,790	c.y.	Select Borrow
70,060	s.y.	A. C. Pavement
7,687	c.y.	Concrete in Structures
929,800	lbs.	Reinforcing Steel in Structures
7,976	l.f.	Concrete Pipe Culvert (various sizes)
3,277	l.f.	Metal Pipe Culvert (various sizes)
8,835	l.f.	Concrete Curb
5,200	l.f.	Concrete Gutter
17,190	l.f.	Concrete Curb and Gutter
6,100	l.f.	6' Chain Link Fence
2,988	l.f.	Relocating 42" Water Mains including Fittings
2,770	l.f.	8" V.C. Sewer Pipe
	L.S.	Highway Lighting System including Substation
1,665	l.f.	Aluminum Railing
7,990	l.f.	Installing Telephone and Electric Ducts

W. M. WACHTER
Territorial Highway Engineer

August 1, 1958

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5089) will be received at McCook, Nebraska until September 11, 1958, for furnishing labor and materials for earthwork and structures, Culbertson canal, Station 1+55 to Station 177+00 BK. and Station 177+63 AH. to Station 299+69, Laterals and Drains, Missouri River Basin Project, Nebraska. Location west of McCook, Nebraska. Principal items are 497,000 cu. yds. excavation; 34,200 cu. yds. earth lining for canal; 970 cu. yds. concrete in structures; 120 Mbm timber in structures; 4,720 lin. ft. timber piles; and other work. Completion time 225 days. For particulars, address Bureau of Reclamation, P. O. Box 737, McCook, Nebraska; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5086) will be received at Ephrata, Washington until September 9, 1958, for furnishing labor and materials for earthwork, concrete lining, and structures, Wahluke Branch Canal, Station 333+20 to Station 537+80, Columbia Basin Project, Washington. Location south of Othello, Washington. Principal items are 352,000 cu. yds. excavation; 3,610 cu. yds. concrete in canal lining; 60 cu. yds. concrete in structures; and other work. Completion time 365 days. For particulars, address Bureau of Reclamation, P. O. Box 368, Ephrata, Washington; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

(Continued on the following page)

OFFICIAL PROPOSALS

Bids: August 28, 1958

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 28th day of August 1958, by Henry A. Cohen, Director, Bureau of Contracts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following Projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, G. L. NICKERSON, District Engineer, 353 Broadway, Albany 1, New York						
Greene (Rte. 385)	FARC 58-117	Catskill Athens, S.H. 5367 Project DF 365(7)	1.14	Asph. Conc. = 0.99 Mi. Misc. Work = 0.15 Mi.	$16,000 Plans $2	$300,000
Greene (Rte. 214)	FARC 58-101	Phoenicia Stoney Clove Pt. 2, FASSH 47-9 Phoenicia Stoney Clove Pt. 4, FASSH 50-12 Project DS 937(5)	4.47	Asphalt Concrete	$11,000 Plans $2	208,000
Warren (Rte. 28)	FARC 58-112	Warrensburgh Glen S.H. 8485 Glen Wevertown S.H. 1963 Project DF 757(3)	0.45	Asph. Conc. = 0.41 Mi. Misc. Work = 0.04 Mi. Plate Girder Br. 360′	$26,000 Plans $3	464,000
DISTRICT No. 3, EARLE E. TOWLSON, Acting District Engineer, 333 E. Washington Street, Syracuse, New York						
Onondaga (Rtes. 31 & 298)	FARC 58-56	Cicero South Bay, S.H. 452 Cicero Bridgeport, S.H. 9084 Syracuse Bridgeport, S.H. 1072 Project DF 1035(2)	7.85	Asph. Conc. Ty. 1A	$45,000 Plans $3	806,000
Onondaga (Rte. 298)	FARC 58-113	Syracuse Bridgeport, Pt. 1, New Court Rd. S.H. 672 A Project DU 994(6)	0.65	9″ Cem. Conc. Pavt. = 0.63 Mi. Misc. Work = 0.02 Mi.	$18,000 Plans $2	324,000
Oswego (Rte. 11)	FARC 58-111	Syracuse Watertown, S.H. 278 Project DF 463(18)	2.38	Asph. Conc. Ty. 1A	$14,000 Plans $2	255,000
DISTRICT No. 4, B. F. PERRY, District Engineer, Barge Canal Terminal, Rochester 1, New York						
Livingston (Rte. 36)	FARC 58-109	County Line Dansville, S.H. 5398 Project DF 579(7)	1.51	Asph. Conc. = 1.49 Mi. Misc. Work = 0.02 Mi.	$10,000 Plans $2	173,000
Monroe & Orleans (Rtes. 18, 272, 33 & 31)	RC 58-114	Br. No. 4, S.H. 8322, Br. No. 2, S.H. 398, Br. No. 1, S.H. 83 Br. No. 1, S.H. 253	....	Clean. & Paint. 4 Brs.	$1,100 Plans $2	20,000
Monroe & Orleans (Rte. 31)	FARC 58-119	Holley Brockport, Pts. 1 & 2 S.H. 5421-5425 Project F 1037(3)	1.14 (0.29 Acc.)	9″ Cem. Conc. Pavt. 24′ Wide = 1.07 Mi. Asph. Con. (Acc.) = 0.29 Mi. Misc. Work = 0.07 Mi. Comp. Girder Br. 321′	$40,000 Full Size Plans $15	716,000
DISTRICT No. 5, E. G. H. YOUNGMANN, District Engineer, State Office Bldg., 65 Court Street, Buffalo 2, New York						
Erie (Rte. 20)	FARC 58-105	South Western Blvd., S.H. 9269 Project DF 1079(7)	3.11	Asphalt Concrete	$35,000 Plans $2	611,000
Erie	PSC 15215 FINTC 58-4	Inter. Route No. 506, New York State Thru. Niagara Sect. (Michigan Ave. Viaduct-City of Buffalo) Michigan Ave. Viaduct—Over N. Y. Central R. R. Project I 865(18)	0.20 (0.06 Acc.)	Asph. Conc. Ty. 2A = 0.15 Mi. Br. Pavt. = 0.11 Mi. RR Sep. W.F. Comp. Beam 604.6′	$60,000 Full Size Plans $15	1,104,000
Erie (Rte.5)	FAC 58-14 FAC 58-15	City of Lackawanna: Arterial Rt. Fuhrmann Blvd.-Hamburg Turnpike Viaduct (North City Line & Ridge Road) City of Buffalo: Arterial Rt. Fuhrmann Blvd.-Hamburg Turnpike Viaduct (Tiff St.-South City Line) Project U 750(14)	1.77 (1.45 Acc.)	Asph. Conc. Ty. 2A (Appr.) = 0.67 Mi. Cem. Conc. Pavt. (Viaduct) = 1.08 Mi. Misc. Work = 0.02 Mi. Asph. Conc. (Acc.) = 1.45 Mi. Viaduct Decking	$190,000 Plans $10	3,266,000
DISTRICT No. 6, JAMES H. THOMAS, District Engineer, State Office Bldg., 30 West Main Street, Hornell, New York						
Yates (Rte. 14)	FARC 58-115	Starkey-Dresden, Pt. 2, S.H. 8353 Project DF 505(8)		Transplanting Trees	$2,200 Plans $5	40,000
DISTRICT No. 7, ROBERT W. SWEET, District Engineer, 444 Van Duzee Street, Watertown, New York						
Jefferson (Rte. 12F)	FARC 58-110	Cape Vincent-Watertown, Part 3, S.H. 1182 Project DF 565(5)	3.40	Asph. Conc. = 3.34 Mi. Misc. Work = 0.06 Mi.	$30,000 Plans $3	555,000
DISTRICT No. 8, KURT G. RAUER, District Engineer, Pleasant Valley Road, Poughkeepsie, New York						
Orange (Rte. 17K)	FARC 58-116	Bloomingburgh-Bullville, S.H. 8166 Mont-Bullville, Part 2 & 1, S.H. 1648-576 Project DF 483(4)	10.00	Asph. Conc. 2RC Twin Box Brs. 23.1′ & 21′	$78,000 Plans $5	1,414,000
ULSTER (Rte. 9W)	FARC 58-107	East Chester Street Extension. S.H. 9360 Project DF 857(3)	1.44	Asphalt Concrete	$12,000 Plans $2	216,000
DISTRICT No. 9, JOSEPH C. FEDERICK, District Engineer, 71 Frederick Street, Binghamton, New York						
Broome (Rtes 17 & 7)	RC 58-106	Binghamton City: Vestal Ave. By Pass FAC 49-8; Binghamton City: Court St.-Rte. 17 Conn. (Susquehanna River Br.) FAC 54-17; City of Binghamton: Brandywine Ave. Ext. (Art. Rte.) FAC 52-3: Brandywine Ave. Ext. FASH 52-8 and Brandywine Ave. Ext., Pt. 2 (North Chenango St. Intersect.) FASH 55-4	....	Landscaping and Misc. Work	$5,000 Full Size Plans $10	86,000
DISTRICT No. 10, M. E. GOUL, District Engineer, 325 W. Main Street, Babylon, L. I., New York						
Bronx	FIMDE 58-1	Inter. Route Conn. No. 512 Major Deegan Expressway (Cont. 1) (Park Ave. to St. Ann's Ave.) Project I 1082(25)	1.05 (27,200 S.Y. Acc.)	9″ Cem. Conc. Pavt. (Carb. Black) 2 @ 39′ Wide = 0.81 Mi. Misc. Work = 0.24 Mi. 23,000 S.Y. Sheet Asph. Pavt. & 4,200 S.Y. Cem. Conc. Pavt. (Acc.) Hy. Sep. Comp. I Beam 112′ Widen 3 Exist. Hy. Seps. 455.2′ Pl Gird., 106.5′ St. Rig. Frame and 79.6′ R.C. Rig. Frame New Ramp and Alter. Exist. Ped. Overpass	$300,000 Plans $20	5,360,000
Bronx	FIBE 58-4	Inter. Route Conn. No. 516 Bruckner Expressway (Sect. L Cont. 1) (St. Ann's Ave. to East 141st St.) Project I U 1086(7)	0.63	9″ Cem. Conc. Pavt. 2 @ 37.5′ Var. Wide (Including Exp. Struct. Surf. Paving Lighting, Drainage & Misc. Work)	$650,000 Plans $20	12,417,000
Nassau (Rte. 27)	FARC 58-118- SS 58-9	Conduit Blvd. Pt. 3, S.H. 1699A, Merrick Rd. Project U 947(15)	0.94	Directional Signs & Lampposts	$5,100 Plans $2	92,000
Richmond	FICLE 58-1	Inter. Route Conn. No. 512, Clove Lakes Expressway (Cont. 1) (McKinley St. to Fingerboard Rd.) Project I 1066(25)	6.62	Demolition of Bldgs.	$19,000 Plans $3	346,000
Suffolk (Rte. 27)	FASH 58-6	Sunrise Highway Ext. (Yaphank Ave. to Uptown Blvd.) Cont. 2 Project DF DU 947(14)	2.56 (5.00 Acc.)	9″ Cem. Conc. Pavt. 2 @ 24′ Wide = 2.34 Mi. Asph. Conc. = 0.12 Mi. Misc. Work = 0.10 Mi. Acc. Cme. Conc. Pavt. 1.90 Mi. & Asph. Conc. 3.10 Mi. Hy. Sep. Comp. Girder 233.8′	$168,000 Plans $10	3,043,000

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage) Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specifications, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Information for Bidders".

The right is reserved to reject any or all bids.

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• POSITIONS VACANT

Highway Engineers—Highway Engineers with a minimum of 3 years experience. Excellent opportunity with established consulting engineering firm in Middle West. P-7909, Engineering News-Record.

County Engineer Wanted: Require registered engineer with highway experience. For more information contact Guthrie County Board of Supervisors, Guthrie Center, Iowa.

General Superintendent—General Contractor with substantial volume throughout Michigan has opening for experienced young man to take charge of all field operations. State experience and references. P-8555, Engineering News-Record.

Civil Engineers—Company fabricating Reinforcing Steel, Steel Joists and Allied Products operating in Southeast has openings in Engineering Department for two graduates. Applicants be subject to intensive training for positions of responsibility. Must be hard working, ambitious, aggressive and have qualities of leadership, military obligation to be completed. Reply furnishing brief and complete resume of experience, recent photograph, availability and salary requirements. P-8577, Engineering News-Record.

Sewage Treatment Engineers and Chemists— City of Nashville, Tennessee has openings for Sewage Disposal and Treatment Engineer, $7500 to $8200 year; Assistant Sewage Disposal and Treatment Engineer, $6000 to $6600 year; and Chief Sewage Chemist, $5100 to $6000 year. Graduate Engineers aged 28 to 45 years, 4 to 6 years experience. All positions under Civil Service with accompanying benefits. If called for interview, City will pay travel and reasonable incidental expenses. Write giving education, experience, references and personal data to Nashville Civil Service Commission, 305 City Hall, Nashville 3, Tennessee.

New England Contractor looking for young graduate Engineer with experience in heavy construction. Excellent opportunity. Send full resume. P-8592, Engineering News-Record.

Wanted: Construction Superintendents and Erectors for Boilers, Turbine Generators, Condensers and Auxiliary Power Plant Equipment. Applicants must have experience record with an erection contractor in responsible supervisory capacity. P-8631, Engineering News-Record.

Man with proven record of Commercial and Industrial construction. Must have estimating knowledge, ability to supervise construction of high rise building. Steady employment with large reputable organization. Salary. Please state all pertinent facts in application. P-8630, Engineering News-Record.

Opening for Civil Engineer with Soil Mechanics background. Occasional travel involved. Good opportunity with consulting firm specializing in soil and foundation engineering. Reply giving background and experience. P-8627, Engineering News-Record.

Experienced estimator with background in concrete structures, grouting, foundations and concrete design. Outstanding opportunity with nationwide contractor for aggressive, alert engineer. P-8623, Engineering News-Record.

Hydraulic Engineer. Civil Engineering graduate with experience in design and planning of water works, to aid in preparation of master plan and design of extensions, pumping plants and reservoirs. Position leads to responsibility for Engineering Department. Contact Chief Engineer, North Marin County Water District, Novato, Calif.

Senior Engineer (2) for general municipal work. Starting salary $6750 with 5 yearly increments to $8250. Must have degree in Civil Engineering. Send resume of experience to City Manager, City Hall, Watertown, New York.

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P-8529, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

• SELLING OPPORTUNITY OFFERED

Wanted established sales representatives for coverage of Alabama, Georgia and Minnesota by manufacturer of insulated metal wall panels. Should have following with architects and general contractors and be capable of material takeoffs. In reply state other accounts carried. RW-8641, Engineering News-Record.

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Experienced Estimator, Project Mgr. and Construction Engineer, Registered Graduate Civil Engineer. Age 35. Available Now! PW-8225, Engineering News-Record.

Civil Engineer, 34, German Prof. Engr. Degr. Exp. field supervision & management, highway bridge, dam constr., Project Engr., Asst., Res. Engr., Asst. Supt. Field Exp.: 4 years Germany, 3 years U. S. Located Middle West. Foreign or domestic assignments. PW-8579, Engineering News-Record.

Civ. Engr. wants permanent employment in greater Cleveland with Engr. firm in planning and design. Excellent references. 4½ years exp. in constr. engineering with large buildings. 1½ years in drafting and surveying. Working towards B.C.E. nights. PW-8616, Engineering News-Record.

(Continued on the following page)

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• *POSITIONS WANTED*

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Executive Assistant. Experienced Management Level construction administration including engineering, contracts, purchasing and personnel. Engineering degree. Age 36. PW-8504, Engineering News-Record.

Construction Superintendent or Foreman. 18 years experience highway construction supervising heavy earth moving equipment—excavating, grading, and drainage. Prefer Midwest or Far West. E. A. White, P. O. Box 358, Mt. Holly Springs, Pennsylvania.

Project Manager or Superintendent for architect or contractor available. Recently completed luxury type 325 room El San Juan Hotel. Working knowledge Spanish and French. Also experienced heavy construction and housing. Age 44, single. Airmail replies to: Allen McSherry, P. O. Box 1215, San Juan, Puerto Rico.

BSCE-33-PE-Presently project engineer on municipal paving and sewage for consultant. Desire Midwest location with city or consultant. PW-8546, Engineering News-Record.

Engineer—Over 15 yrs. exp. steel, concrete, and foundation design for oil refineries, railroads, bridges and buildings. Part or full time N. Y.-N. J. area. PW-8559, Engineering News-Record.

Construction manager or superintendent—twenty years experience power plants, pulp, steel and fuel plant construction. Foreign or domestic. Available immediately. PW-8558, Engineering News-Record.

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Graduate Civil Engineer, 15 years extensive engineering, construction & executive experience wants opportunity with general contractor. Will invest if necessary. PW-8613, Engineering News-Record.

Executive, thoroughly experienced all types of building and heavy construction, seeks contacts with General Contractors requiring top man to handle all phases of Contracting, bid to completion. Qualified to run a large Project, Branch Office or a Business. Salary $20,000. PW-8450, Engineering News-Record.

Construction Supt. General Construction. PW-8340, Engineering News-Record.

Engineer, Registered & Graduate in Civil, post graduate work in Structural. 8 yrs. experience in Civil, Structural, Architectural, Mechanical, and Electrical design & const. supervision. Partner & Chief Engineer of Arch. & Engin. Firm last 4 yrs. Resume on request. Box 635, Bethany, Okla.

Professional Engineer, age 39, experienced in Contract Administration, Industrial Construction supervision and maintenance supervision. 9 years varied experience here and abroad. Will relocate. PW-8642, Engineering News-Record.

Administrative—Engineering — Construction 10 yrs. diversified experience in C.E. design, gen. contracting, gunite pools, concrete, and municipal. B.S.C.E., age 32, Tau Beta Pi. Reg. P.E. (S.E. States) and L.S., ASCE, NSPE. PW-8647, Engineering News-Record.

• *POSITIONS WANTED*

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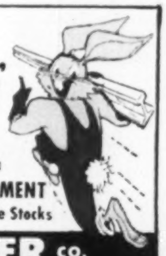

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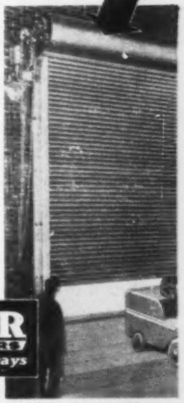

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Editorials

Doubtful Aid

THE AID TO EDUCATION BILL, which Congress seems about to pass, is a poor substitute for what is needed. It also will entail a cost to the taxpayer out of proportion to the benefits it will provide. And the very fact that it is called a "four-year emergency program" labels the bill as a poorly conceived piece of legislation. There may be an emergency, but a four-year shot in the arm—and the wrong arm at that—can hardly give scientific education in the United States the continuing help and encouragement that is required.

The most glaring inadequacy in the bill relates to the student scholarships and loans. President Eisenhower has rightly criticized the number of these scholarships—23,000—and asked that they be reduced to 10,000. But he apparently accepts the fact that they are to be undergraduate scholarships. The pressing need—and almost the sole one—is for graduate scholarships. Merely making it possible for more undergraduates to crowd into the colleges is getting us nowhere at all.

The President quite properly urged that the scholarships be granted only to those who need the money to finance their college educations, whereas the bill would make anyone eligible who could pass an examination. That in itself raises a suspicion that the bill was carelessly drawn, since educators are agreed that a real fault of our system is that too many bright students are denied higher education because they can't afford it.

In any event, before more undergraduates can be properly handled in our colleges, teaching staffs need to be augmented and improved. The bill provides some money for this purpose, but there is no way to tell whether it is adequate. Certainly a mere four-year program will not correct the teaching situation.

One real emergency in our scientific education system stems from a lack of secondary school teachers of science and mathematics of a caliber to attract more students to their courses and to turn out graduates capable of fast advancement when they reach college. And the lack of teachers extends to the engineering colleges themselves, where the pay is not always attractive enough and where student bodies have grown too fast for existing faculties to handle them effectively.

Graduate scholarships would hit at the root of this teacher shortage problem. And not only would these graduate students provide a pool of potential teachers, they also would furnish the scientists and research experts that framers of this bill had in their sights initially, but somehow lost in their enthusiasm to do something quickly when the success of Russia's first Sputnik sounded a call to action.

A bill that would provide the National Science Foundation with enough funds for a continuing and adequate program of support for the physical, mathematical, biological and engineering sciences through research and graduate education would do vastly more than the present bill, and probably at less cost. Such a bill also would accord with the views of the Engineering Manpower Commission, the American Society for Engineering Education and the American Society of Civil Engineers, to name a few organizations that have studied the problem. Such a program of federal aid would be helpful. That provided in the bill Congress is considering is, by contrast, of doubtful merit.

Thin-Wall Growing Pains

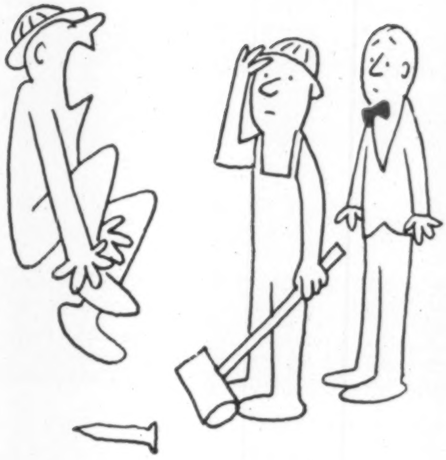
UNFORTUNATE BUILT-IN DEFECTS have made some of the new metal and glass walls of buildings a poor investment. They leak, fail to keep out wind and heat, have a poor appearance and are costly to maintain. Since such thin-wall construction (offering advantages that made it almost an overnight success) is a recent development and, therefore, subject to growing pains, some "bugs" were to be expected. But many of the troubles could have been avoided. The article in this issue (page 38) is presented in the hope that thin-wall troubles in the future can be minimized by seeing how and why they occurred in the past.

The most important conclusion to be drawn from this past experience is that it is imperative for specifications to be detailed and complete. Relying too much on the man in the field (the bulk of whose experience has probably been with masonry structures) for interpretation of specifications has been the cause of many defective metal and glass facades.

But responsibility for thin-wall troubles rests with others too. Building owners, by insisting on excessive economy, have caused poor walls to be built. Their desire to keep initial costs down is valid, but they also must recognize that it is costly when a poor design, cheap materials and bad workmanship produce a defective structure with high maintenance costs. Too often, a design that looked good on paper turned out to be impracticable on the job, because the designer did not understand clearly the erection sequence. He could benefit from conferences with panel manufacturers who have done intensive research on their products. Conversely, manufacturers can learn much from architects and contractors on needed improvements.

Furthermore, many new building products, specifically conceived as a solution to the difficulties that plagued pioneer thin-wall builders, are now on the market. It remains for architects and engineers to take full advantage of them.

Cooperation of all parties involved in building construction, from start of design through erection, will go a long way toward providing a satisfactory thin-wall building at minimum cost.



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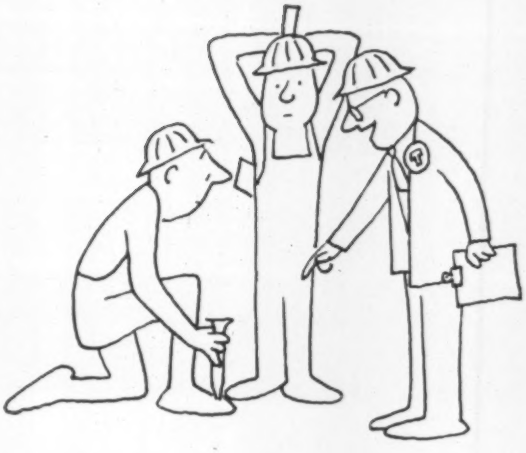

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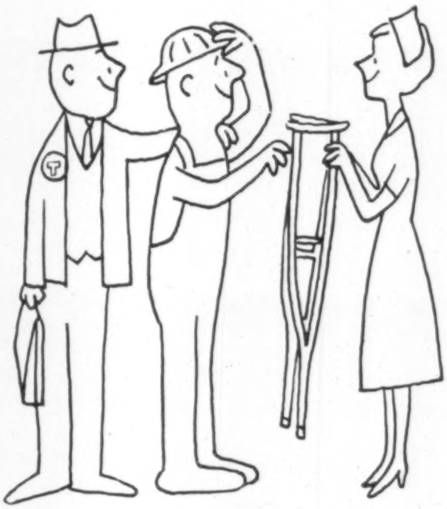

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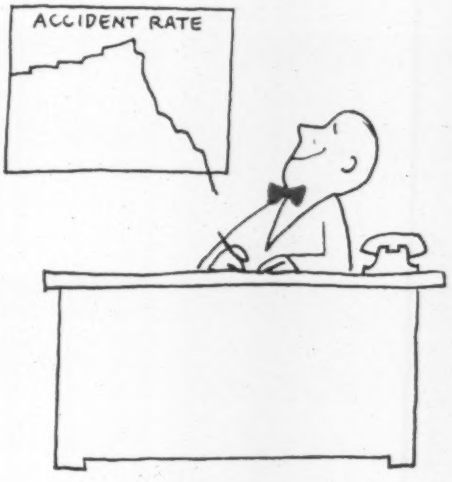

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Now Dick is in the chips again—he bought the Travelers plan.
And it can do the same for you. So call your Travelers man.

NOTE: *Bonds, Equipment Floaters Builders' Risk Insurance, too*
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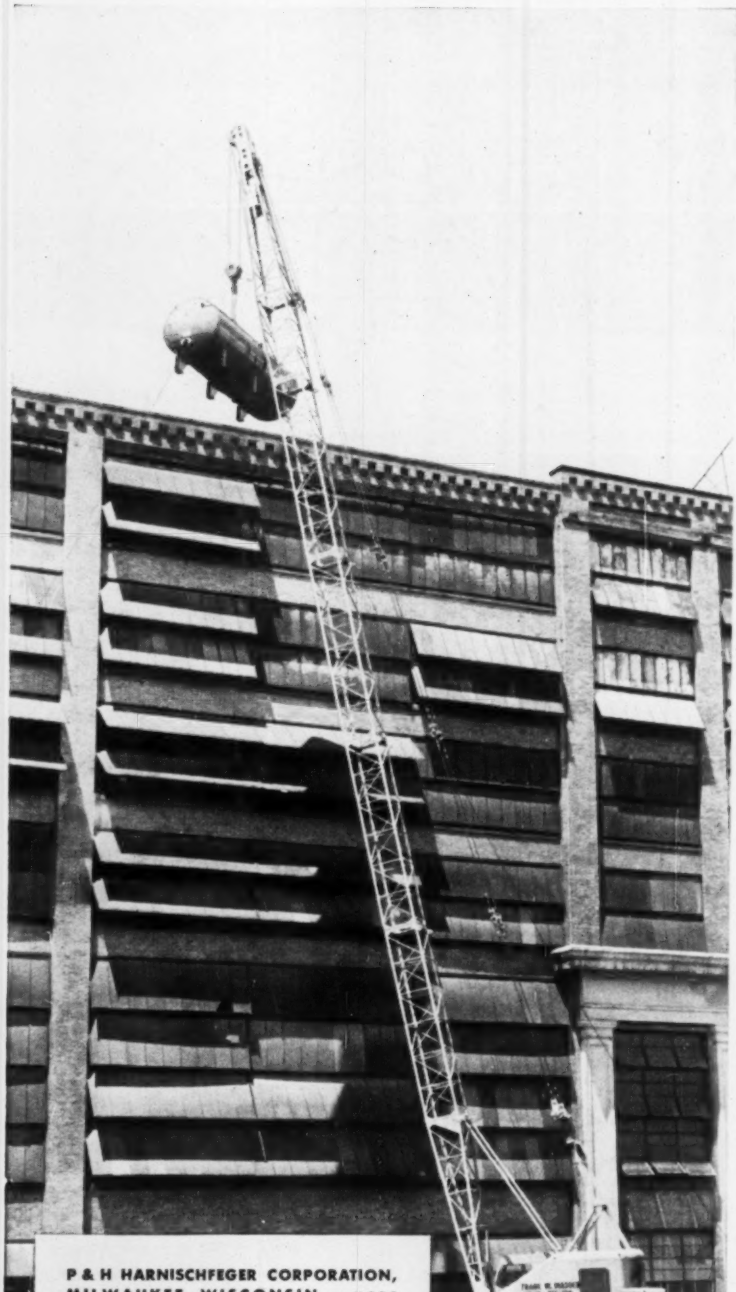

P & H HARNISCHFEGER CORPORATION, MILWAUKEE, WISCONSIN . . . uses Timken tapered roller bearings for practically friction-free operation in its heavy-duty cranes.

MOST POWERFUL CRANE ON WHEELS LIFTS 45 TONS ON 37 TIMKEN® BEARINGS

IMAGINE the fantastic strain when this Harnischfeger Corporation 575-TC truck crane lifts 45 tons on a 40-ft. boom. Or 10 tons on a 130-ft. boom (see picture at left). It's the world's most powerful truck crane—and a natural for Timken® tapered roller bearings. Harnischfeger engineers specified 37 Timken bearings at vital load-carrying spots in the boom hoist drum, digging drum, swing shaft, front and rear axles.

Timken bearings give extra load-carrying capacity because there's full line contact between rollers and races. And the tapered design lets Timken bearings take the tremendous radial and thrust loads in all combinations. To take shocks, Timken bearings are case-carburized to get hard, wear-resistant surfaces and tough, shock-resistant cores.

And with Timken bearings, shafts are held concentric with their housings, making closures more effective. Dirt and dust stay out, lubricant stays in. Timken bearings practically eliminate friction, give longer bearing life with less maintenance. And we even make our own steel . . . something no other American bearing manufacturer does.

Look for the "TIMKEN" trade-mark on every bearing when you build or buy machines. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

TIMKEN BEARING EQUIPPED *This symbol on a product means its bearings are the best.*

TIMKEN

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TAPERED ROLLER BEARINGS ROLL THE LOAD